

AIR CONDITIONING & REFRIGERATION

The Newspaper of the Industry

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NEWS

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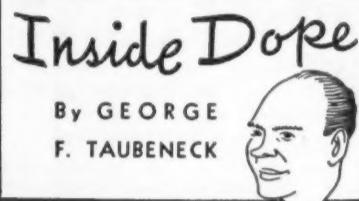
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Learn to live and laugh —
thus delay your epitaph

Story of the Week
Lord Kelvin's Law: They Get Bigger Annually
Experience-Tested Logic

Story of the Week

Shortly before he died Sam Jones suddenly made a lot of money. Proud of his new station in life, he dictated a will which directed that he be buried in a brand new Cadillac.

Although this extraordinary request took quite a bit of doing, it was done. At the conclusion of the ceremony a beautifully embalmed Sam—dressed in a tux and seated behind the wheel of a Cadillac Brougham—was lowered into the biggest grave in cemetery history.

"Man!" exclaimed a gravedigger, "that's Living!"

Lord Kelvin's Law: They Get Bigger Annually

Like the household refrigerator and the home freezer, room air conditioners get bigger and stronger every year. That's what the people want, it seems.

At first they buy the smallest and cheapest new refrigerating products on the market. Progressively thereafter they become dissatisfied, and want bigger models next time around.

As of now $\frac{1}{3}$ -hp. room air conditioners are extinct, and the $\frac{1}{2}$ -hp. unit is primarily a casement window installation. That formerly standard $\frac{3}{4}$ -hp. room cooler, which registered 60% of total sales in 1953 probably will achieve no more than 38% in 1957. Full-ton room coolers, it is predicted, will jump from 1953's 18% to 40% this year.

No doubt the 1½ and 2-hp. room air conditioners will enjoy greater volume this year and next, too. Dealers remember that the supply of these biggest jobs ran out half way through the 1956 season, and they are stocking up on them.

Somewhat this progressive consumer demand for larger and larger sizes seems to be a Law in the home refrigeration business. It's an old story to old-timers—even those who date back to Lord Kelvin.

We remember when the 4-cu. ft. box was by far the best selling household refrigerator. As years rolled onward, consumer demand stepped up to 6, 7, 9, and now 12-cu. ft. boxes. Same deal with home freezers. They started out with fours and fives. Look at the size of them now!

Forward planners, both at factory and field levels, should get ready for continued upsurge of higher output and BIGGER air conditioners—and (Concluded on Page 10, Col. 1)

30-Day Outlook

Above Normal, Hot Weather Over Most Of U.S. Forecast

WASHINGTON, D. C.—The entire central part of the country, the Southwest, and the southern Pacific coastal area will be hot in the period from mid-July to mid-August, according to the U. S. Weather Bureau official 30-day forecast.

"Above normal" temperatures are predicted for the entire Midwest and Plains states, while "much above normal" temperatures are predicted for sizable parts of Texas, Oklahoma, Kansas, and New Mexico, and the southern California coast.

"Near normal" temperatures (which range pretty hot in August) are predicted for the Middle Atlantic states and part of the Southeast.

Supermarkets Urge 'Realistic' Depreciation

CHICAGO—The useful life of supermarket equipment is far shorter than that allowed by current depreciation rates, a nationwide survey of members of Super Market Institute just concluded shows.

And that life grows shorter daily, with the introduction of automatic machinery which wears out quickly, it was stated.

More than 1,500 supermarkets were covered in the study, designed to aid the Internal Revenue Service in setting up "realistic depreciation rates."

Supermarkets urged the Commissioner of Internal Revenue to treat "supermarkets as a distinct industry," to use the future editions of Bulletin F, now under study by the Service, as a guide only, and to set up (Concluded on Page 25, Col. 3)

June Chattanooga Room Units Up 320%

May St. Louis Freezer Sales Rise 108.5%

CHATTANOOGA, Tenn.—June sales of 2,229 air conditioning units for domestic use reported by the Electric Power Board of Chattanooga, topped the May figure by 320%, an all-time record for dealers in the area the utility serves.

Commercial air conditioning units and room air conditioners for commercial application, sold in June, totaled 74. Dollar values add up to \$556,024.05 for the domestic units, and \$240,191.50 for the commercial types.

Some other major appliance sales reported by dealers in the area, were: refrigerators, 466; home freezers, 279; electric ranges, 357; automatic washers, 411. All of these figures were below those shown for May.

As in June, May sales of air conditioners surpassed sales of (Concluded on Page 31, Col. 4)

Commercial Section

WHAT'S GOING ON IN COMMERCIAL REFRIGERATION? Read the special section devoted to this subject on pages 24 through 29 and you'll know...

Commercial Distributor Sales Up 15% In May, page 24; Milk Tank Manufacturer Tests Tanks In Two Milk Houses To Eliminate Field Testing, page 25; Dual Systems In Supermarket Warehouse Cost More But Insure Against Food Spoilage, page 26; Firm Double-Freezes Meat To Lock In Color, page 28; Supermarket Urges Customers To Use Protective Bags for Frozen Meats, page 29.

Not included in the section, but of special interest to those in the commercial field, is this week's editorial entitled: "Frozen Candy — Another NEW Commercial Refrigeration Market" on page 16.

Cooling Reduces N.Y. Absenteeism During Heat Wave

NEW YORK CITY—A telephone survey of some 100 major companies in this city during the recent heat wave revealed that far fewer firms were sending employees home when temperatures soar into the 90's. Air conditioning has made it unnecessary, office managers and personnel directors said.

The report of Lever Bros. Co. was pointed to as typical. There was no work problem in the new air conditioned Lever House on Park Ave.

Carrier Corp., which made the survey, found at American Machine & Foundry Corp.'s headquarters there was less absenteeism since the firm moved into the air conditioned building a year ago.

A similar story came from the office of the American Home Products Co. which has central air conditioning. AHP indicated there is less absenteeism during a heat wave than at other times. Another observation was that more women stay in the office (Concluded on Page 31, Col. 1)

ST. LOUIS—May freezer shipments by certain distributors to dealers in the area served by Union Electric Co. rocketed 108.5% over April and were 10.7% higher than May a year ago, the utility reported.

There were 590 food freezers moved in May as against 283 in April and 533 in May last year. Total sales for the first five months of this year reached 2,300, a 2.6% rise over the 2,241 for the like period last year.

Dehumidifiers made a sharp 140.9% climb in May when 224 were shipped compared with the 93 in April. There was also an impressive 148.9% gain registered over the 90 sold in May, 1956. Sales in the first months boomed 151% over the like period a year ago with 364 being moved as against 145 in (Concluded on Back Page, Col. 1)

Auto Mfrs. Glow at Prospect Of Banner Auto Cooling Year

By Robert E. Lacey

DETROIT—Auto air conditioning showed signs in a NEWS roundup of having a record year. Automobile manufacturers glowed at the bright prospects in 1957.

Buick Div., General Motors Corp. Sales of air conditioned Buick passenger cars during the first six months totaled 16,750, up 28% from the 13,088 sold in the same period last

Auto Air Conditioning Section starting on page 6, and "Servicing Automobile Air Conditioners" on page 35 will be of interest to those engaged in this phase of the industry.

year, the company reported. Nearly 5,000 additional air conditioners have been installed by dealers, the firm added. In all of 1956, 30,584 Buicks were equipped with air conditioning units.

Cadillac Div., GMC. Up to a month ago, beginning with start of the model year last fall, Cadillac had installed 35,700 air conditioners at the factory. This brings the total to more than 100,000 installed since the firm began equipping its autos with (Concluded on Page 9, Col. 1)

Memphis Outlets OK Room Unit Code

MEMPHIS—The local Better Business Bureau's voluntary code for advertising and selling room air conditioners, which recommends use of ARI Standard 110-56 B.t.u.h. capacity ratings, has been accepted by 84 dealers and distributors here. Each has agreed to conform to the 17 BBB standards covered in the code to keep the public from being misled about horsepower, tons, and B.t.u. cooling capacity, it was explained by George Morse, head of Memphis BBB.

BBB has been furnished with (Concluded on Back Page, Col. 4)

BEHIND PAGE ONE . . .

Refrigerator-Freezer Promotions

St. Louis, San Diego, Philadelphia, and New Orleans Areas Report on Drives To Boost Sales 11

Refrigeration System Contaminants (2)

How To Clean Up After Motor Burnout 14

Motors and Motor Protection

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Refrigeration Problems

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What Size Room Unit?

A-B-C Formula Helps Public To Figure Size They Need for Particular Room 32

Servicing Automobile Air Conditioners

Frigette Models (1) 35
(See Box at top of Column 3 for Special Commercial Section Articles.)

Dependable Prescription for Refrigeration &
Air Conditioning Equipment

Rx Always Specify READING Copper Tubing

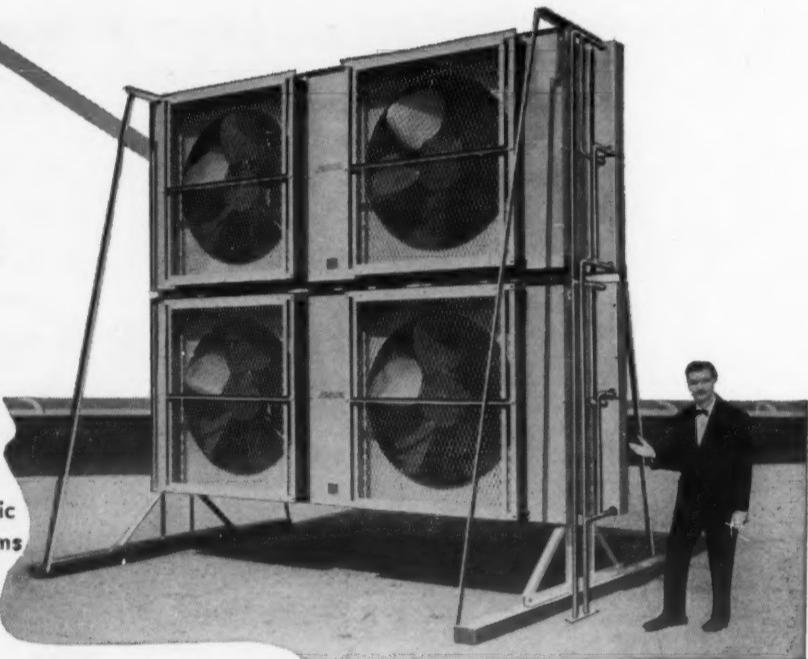


Made by Copper Tube SPECIALISTS

READING TUBE CORPORATION
EMPIRE STATE BUILDING NEW YORK 1, N.Y.
WORKS: READING, PA.

KRAMER UNICON GETS BIGGER and BIGGER

There is only one answer to large capacity condenser problems — the KRAMER UNICON. Every day more engineers plan larger tonnage installations — 50, 100 and even — 800 tons. And every day UNICONS are shipped to all parts of the world for giant-sized installations. No other air-cooled condenser can match the long, successful record of UNICON, backed by thousands of applications since 1937 — in the widest range of tonnages and climatic conditions. Your condensing problems can be best answered by use of the best — the KRAMER UNICON.



Space-saver UNICON, as illustrated, serves a 60-Ton air conditioning system, yet takes but 70 sq. ft. of roof space.

UNICON is a remote-type air-cooled condenser that requires no water. KRAMER UNICON can be used with any size compressor, REGARDLESS of horsepower. Any size refrigeration or air conditioning system can be air-cooled with UNICON, REGARDLESS of tonnage. UNICON requires less horsepower, less piping, is easier to install and costs less. KRAMER UNICON performs best — even in semi-tropical climates.

WRITE FOR BULLETIN U-210D

KRAMER TRENTON CO. • Trenton 5, N.J.

Dun & Bradstreet Survey

89% of Interviewees See Final '57 Quarter Equal to or Above '56 Level

NEW YORK CITY — Higher fourth quarter of 1957 would equal, or exceed, the comparable 1956 level was expected by 89% of the executives interviewed. Wholesalers were generally somewhat less optimistic than the others, although 35% anticipated a rise in net profits.

Manufacturers, wholesalers, and retailers were all slightly more optimistic than in the previous survey. Most executives expected price rises to account for part of the increase rather than expansion in unit volume.

For every manufacturer who thought his company's sales volume in the fourth quarter of 1957 might fall below a year ago, eight manufacturers expected an increase in sales.

That their net profits in the

fourth quarter of 1957 would equal, or exceed, the comparable 1956 level was expected by 89% of the executives interviewed. Wholesalers were generally somewhat less optimistic than the others, although 35% anticipated a rise in net profits.

The survey indicated that higher profits may be more difficult to obtain than higher sales, but businessmen in all of the industry groups expecting increased profits were far more numerous than those anticipating declines.

High selling prices will most likely be sustained in the fourth quarter of 1957. While two thirds of the businessmen fore-saw no change from year-ago levels, those anticipating an increase were 11 times more numerous than those who expected to reduce their prices.

Two third of the businessmen in all trade groups expected inventories to equal those of the fourth quarter of 1956.

Copeland Names Fry To Head Engineering, Ups Lessing in Dept.

SIDNEY, Ohio — Donald E. Fry has been appointed chief engineer of Copeland Refrigeration Corp., Oskar H. Buschmann, senior vice president, announced.



D. E. Fry

Buschmann also announced the promotion of Charles A. Lessing to the position of assistant chief engineer. Lessing joined Copeland's engineering department as a draftsman-designer in 1937. In 1941 he was named to head the drafting department.

Since joining Copeland in 1955, Lessing has served as chief laboratory engineer. In 1956 he served in the capacity of design and development engineer. Prior to joining Copeland he was associated with International Harvester in that company's refrigeration product development and engineering department.

Edith Smith Leads New Conditioning Mfg. Firm

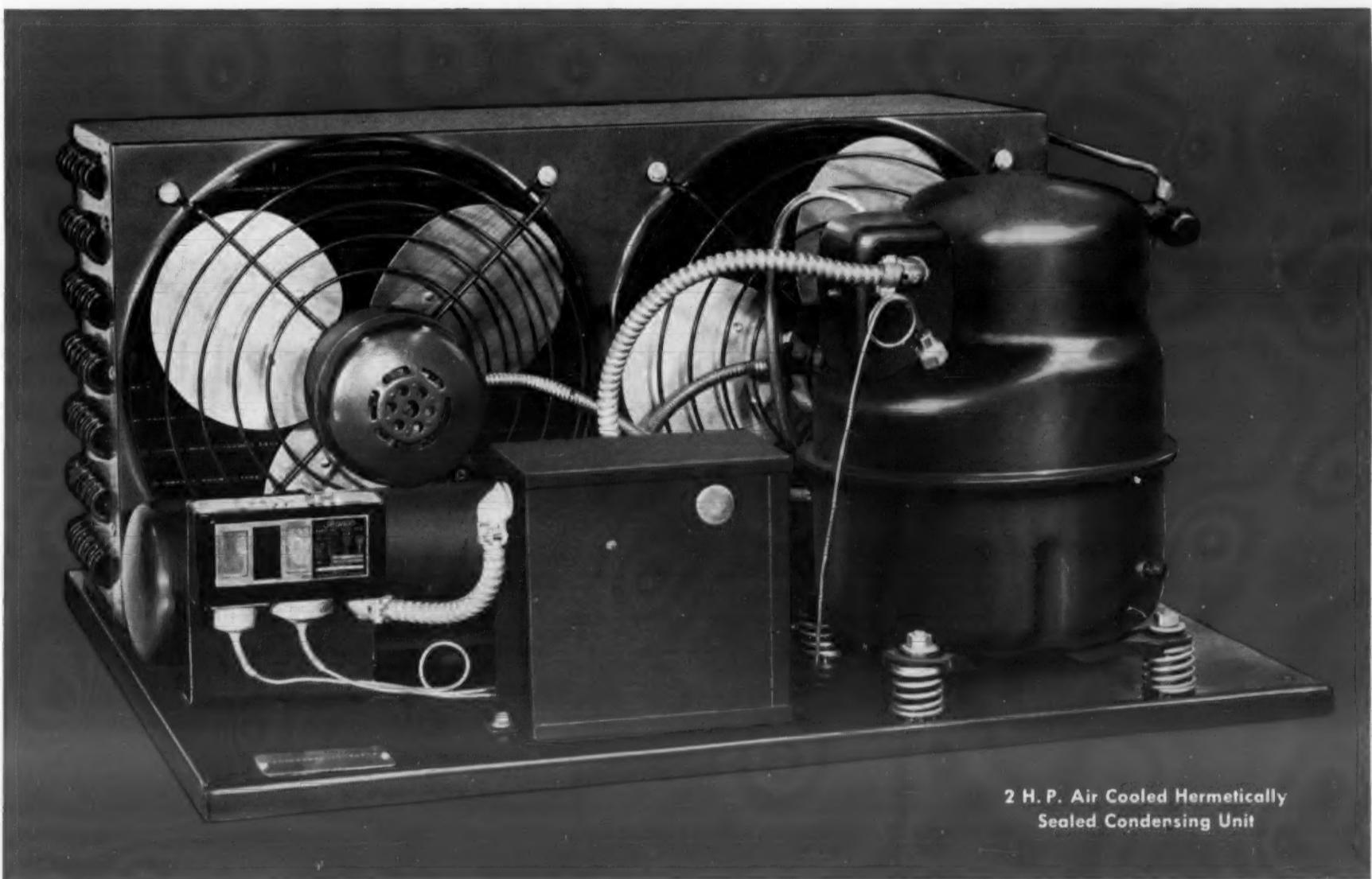
ST. PETERSBURG, Fla. — Edith B. Smith is president and treasurer of the newly-formed local firm, E. B. Smith, Inc., which plans to manufacture "Royal-Aire" residential heating and air conditioning equipment from 2 to 20 tons in size. The systems will be in package and remote units, it was stated.

Fred M. Fischer is vice president and general manager of the organization, and G. Kirk Smith is secretary. The concern is located at 1311 Robin Road South.

Units will be distributed through independent outlets, the company announced. There are no plans to deal with national distributors. Plans are to cover the states of Florida, Georgia, and Alabama currently in the distribution system.

to
serve
you
better!

LARGER SEALED UNITS THROUGH 2 H.P. FROM KELVINATOR



2 H.P. Air Cooled Hermetically
Sealed Condensing Unit

Now you can make even more sales, save more in time and money, enjoy greater profits because Kelvinator offers you *one dependable source* for hermetically sealed condensing units from $\frac{1}{8}$ through 2 H.P. New and larger units are available in a wide choice of models for almost every application. They give you the same advantages of long, trouble-free life . . . low operating cost, and high efficiency that have made Kelvinator the standard of the industry since 1914.

See your Kelvinator Authorized Wholesaler or write:
Kelvinator Division, Detroit 32, Michigan.

Kelvinator

Division of American Motors Corp.
In Canada: Kelvinator of Canada, Ltd., Toronto 15, Ontario

American Motors Means



More For Americans

SPECIALISTS IN REFRIGERATION SINCE 1914

Congress May Eye 'Phony' List Prices, Ads by Furniture Makers, Retailers

WASHINGTON, D. C.—Congressional investigators are expected to probe charges that some furniture makers and retailers use phony list prices to cheat the consumer, it was learned here.

A House Government Operations subcommittee reportedly intends to start the probe following completion of studies in other fields. A spokesman said the subcommittee has investigators in the field right now looking into furniture and clothing industries' practices.

Misleading advertising will also be scrutinized by the group in its investigation of phony claims and list prices. It was explained that some manufacturers, at the request of furniture retailers, will jack up the price

of items by placing a false price tag on the item.

Then the retailer slashes the price back close to the original selling price and the consumer is led to believe he is making a substantial savings on the purchase.

Motor Mfr. Sets Up National Distribution

ROCHESTER, N. Y.—Fasco Industries here, maker of shaded pole and permanent split capacitor motors since 1934, is now in the process of setting up a nationwide distributing organization, the manufacturer announced.

Present plans call for the establishing of distributors in all

major cities, which will make its full line of motors and blowers available to the small user and to the replacement market at the local level, the announcement said.

"This step has been taken in response to the demands of the air conditioning, heating, refrigeration, ventilating, vending machine, and appliance industries to satisfy the replacement needs of literally millions of products in the field which are equipped with Fasco motors," it was stated.

"Fasco also recognized the convenience and importance of making its line of motors and blowers available through local channels for immediate delivery and in any quantity," the firm added.

A separate sales organization has been established "to provide every selling aid and service to Fasco distributors," the company said.

Not Spurring Slow Horse

U. S. 'All But' Rules Out Lower FHA Down Payments; Fall Date Sighted

WASHINGTON, D. C.—Although the Federal Housing Administration clipped 15% off the charge on insured home modernization and repair loans, the Eisenhower Administration had all but ruled out for now lower down payment requirements on government-backed mortgages. It was also considering a boost in the interest rate ceiling.

MAY SET NEW RATE

High-level Federal officials hinted that if the Administration does make this move, the new rate probably would not be lifted to above 5 1/4%. The FHA currently permits lenders to charge up to 5% interest on home mortgages insured by the

agency. Under special circumstances this can be lifted to 6%.

In midweek it was reported that Federal Housing Administrator Mason will refuse to lower down payments on government-backed home mortgage loans until fall because of inflationary dangers.

Through the Title 1 program, FHA insures loans up to \$3,500 to homeowners for the purpose of making certain home improvements. The new premium rate to be paid by lending institutions on so-called Title 1 modernization and repair loans will be 0.55% a year, reduced from the previous 0.65%.

HOME BUILDING DROP

Two new reports highlighted the housing industry's problems with sagging home building. The Labor Dept. said private housing starts in June declined to a seasonally-adjusted annual rate of 970,000 units, compared with 980,000 the previous month, and 1,091,000 a year earlier.

The Bureau of Labor Statistics indicated housing and apartment starts declined from 102,000 in May to 97,000 in June, but said the decrease was seasonal.

Then the Veterans Administration revealed builders' requests for appraisals of proposed new homes—considered an accurate indicator of future construction—last month dropped 17.2% from May to the lowest level for any month since September, 1951.

HOUSING ACT PROVISIONS

In the 1957 Housing Act, Congress gave the FHA commissioner power to lower down payment requirements on mortgages insured by the agency if he found conditions in the economy and the homebuilding industry warranted such a move. A final decision on the controversy between FHA officials and the White House was not expected right away. Federal Housing Administrator Cole termed reports that a decision had already been reached "absolutely inaccurate."

Geo. S. Goodyear, president of the National Association of Home Builders, who recently applauded signing of the Housing bill into law, said prompt action is needed now by the Federal agencies to put the lower FHA down payments into effect immediately.

74-Day Walkout Ends at Lau; USW Accepts Raise

DAYTON—A 74-day strike at the plant of Lau Blower Co. here has terminated with the United Steel Workers union and the company agreeing on terms of a new contract.

Terms reportedly include an 11 to 12-cent package, affecting wages, insurance benefits, and classification rate increases.

Lau expected to return about 150 of its workers to their jobs immediately, and to call back an additional 170 as the plant resumes full operation.

HERE'S WHY YOU SHOULD

SELL

WOLVERINE

TUBE

You're right, Mr. Wholesaler. If we are telling you "what" you should sell then we should be just as willing to tell you "why". Illustrated and described right, are the products Wolverine Tube manufactures for you to sell to your customers. We're listing some pretty potent sales points. Won't you look them over . . . and keep them in mind next time you order?



1 WOLVERINE ROLL-O-TUBE

Wolverine Roll-O-Tube® is the industry's most modern and functional tubing carton. Your customers can roll it like a hoop, carry it by its convenient center hole, use it as a work saving reel and leave unused tube in the sturdy carton protected against damage and dirt until needed again. Your customers will appreciate these features when you explain them . . . will keep coming back for more.

2 WHOLESALER SUPPORT

Every carton of Wolverine Roll-O-Tube and every Wolverine advertisement to your customers carries this slogan "BUY FROM YOUR WHOLESALER". It's dynamic proof of Wolverine's belief in the American wholesaler—the kind of proof that helps strengthen your position.



In addition to its high quality, Wolverine copper refrigeration tube also offers your customers a new kind of tube seal—a plastic plug that can be used over and over, that gives positive protection against water and dirt and which, because its O.D. is the same as the tube, permits the tube to be easily threaded through partitions, etc.

And there you have them—three solid reasons why it will pay you to sell Wolverine products.

CALUMET & HECLA, INC.
CALUMET DIVISION
WOLVERINE TUBE DIVISION
FOREST INDUSTRIES DIVISION
GOODMAN LUMBER COMPANY
CALUMET & HECLA
OF CANADA LIMITED
CANADA VULCANIZER AND
EQUIPMENT COMPANY LIMITED

WOLVERINE TUBE
Division of Calumet & Hecla, Inc.
1413 CENTRAL AVE., DETROIT 9, MICH.

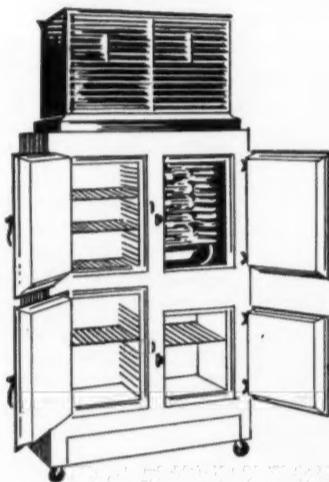
Manufacturers of Quality Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPARTMENT, 13 EAST 40TH STREET, NEW YORK 16, NEW YORK

For more information about products advertised on this page use Information Center, page 20.

What's the secret behind the many famous "FRIGIDAIRE FIRSTS"?



1913 DOMELRE

"Granddaddy" of the present-day Frigidaire Refrigerator. An air cooled unit, it was mounted on the customer's icebox!



1957 FRIGIDAIRE

Imperial Cold-Pantry - 14 cu. ft.
Food Freezer-Refrigerator - finest
showpiece in the all-new Sheer
Look line.

We've always felt there's not much point in listing the achievements of the past unless they tell something important about the future.

And that's why we have listed some of the many "Frigidaire Firsts" below.

They not only show you the kind of news you can expect from Frigidaire in the years ahead, they reveal a basic concept that has been—and *always will be*—the backbone of Frigidaire policy:

Don't hold back when you've got something good. If it's right — and you know it's right — go all the way with it.

This is the policy that stands behind the Sheer Look and its revolutionary impact on the market.

This is the policy that gave you Color at the Price of White.

This is the policy that produced Charcoal Gray, still a Frigidaire exclusive and most popular color of all.

This is the policy that—since 1918—has made Frigidaire the best-known name in household refrigeration.

This is the policy that makes Frigidaire Appliances exciting to see, wonderfully convenient to use, *a pleasure to sell*.

This is the policy that gives you the brightest future in the business, for now — as never before —

FRIGIDAIRE is on the march



Frigidaire — Built and Backed by General Motors

Famous "Firsts" from Frigidaire

- 1913—First commercially successful household unit, the Domelre, offered for sale. In 1918 became known as Frigidaire.
- 1921—First one-piece metal compartment liner.
- 1926—First steel refrigerator cabinet.
- 1927—First porcelain-on-steel cabinet exterior.
- 1929—First home food freezer. First Cold Control. First automatic reset defrosting system.

- 1930—First high-humidity drawer for fruits and vegetables.
- 1931—First safe, odorless, non-toxic refrigerant — FREON.
- 1933—First sealed Meter-Miser Compressor. First Ice Cube Tray release.
- 1937—First All-Metal Quickube ice tray.
- 1939—First Cold Wall Refrigerator.
- 1952—Revolutionary Cyclo-Matic Refrigeration System.

- 1955—First "Picture Window" Hydrator on the door.
- 1955—First Ice-Ejector — built-in manual cube release and cube storage.
- 1956—Plan-A-Door optional door storage arrangement to meet family needs.
- 1956—The Sheer Look, most sweeping design change in a score of years.

Automobile Air Conditioning

As part of AIR CONDITIONING & REFRIGERATION NEWS' continuing effort to keep its readers informed of activities in the rapidly expanding field of automobile air conditioning, the NEWS is devoting pages 6 through 9 to this subject.

In addition, readers will find a round-up story on Auto Air Conditioner Sales for the first half of 1957 starting on page one.

"Servicing Automobile Air Conditioners," a regular feature by C. Dale Mericle, appears on page 35.

Selling Auto Air Conditioners

Small Ad Sells Out Dealer's Stock, Creates Backlog; Lay-Away Plan Stimulates Pre-Season Sales for Washington, D. C. Firm

WASHINGTON, D. C.—Within three days after the Manhattan Auto & Radio Co. advertised its line of auto air conditioners and car coolers, the main store and its branches had a complete sell-out.

With such a reception, the store management intends to make car air conditioning an integral part of its over-all operation.

"For years, we had been selling car coolers that extend through the window and work on the evaporative basis," explains General Manager Al I. Nathanson. "But we felt that the time had come when we could enter into all phases of the car conditioning field. So we take notice of them, and every

added a line of auto air conditioners and the portable plug-in type.

2-INCH ADVERTISEMENT SELLS 12 UNITS

"As a starter, we ran a 2-in. ad in the *Washington Star* to see what results we would have. We were amazed when we sold out our preliminary stock of 12 car conditioners and the portable units. We also took orders for future installations."

Nathanson feels that the surface hasn't even been scratched insofar as the sale of car conditioners and coolers are concerned. It's only in the past season that the public has begun to

car owner is a definite prospect.

He feels that the appliance outlet is in one of the best positions to take advantage of the sale of this equipment.

Customers at Manhattan were served on a first come, first served basis. Some got preference when they explained that an air conditioner in the car meant that a member of the family suffering from asthma or other allergies could now make auto trips. Appointments were made for the installations, as this job takes a full day.

A factory representative for the line of air conditioners that Manhattan Auto is handling, provided complete installation

DRYSEAL's the tube to use! Its double crimp is same size as tube diameter. Slips easily through fittings. Keeps the mirror-smooth I.D. bone-dry, whistle-clean. Dead-soft **DRYSEAL** bends without tools. Flares without splits. Try economical **DRYSEAL** on your next job.

instructions to the mechanic selected to make these installations. He also made the first installation while the mechanic watched, then let the mechanic install the next one under his guidance. This mechanic is going to be the shop foreman.

STOCK COMPLETE LINE OF REPLACEMENT PARTS

Manhattan is stocking a complete line of replacement parts and is featuring service-after-the-sale. "We explain to motorists that when they trade in their current car, that they can come here first and have us take out their unit, and when they get the new one, to return and have it re-installed.

"These car conditioners will fit into any car and we have the parts, tools, and equipment on hand necessary to make the change. Our removal and re-installment charges are very nominal, less than the price of a tire."

Rounding out the line of air conditioners are coolers, portable units, and window types that operate on either 6 or 12-volt batteries and need only to be plugged into the cigarette lighter. The portable unit can be placed anywhere in the car, and the window type can either be installed by Manhattan or the motorist himself.

"We are currently selling mechanical air conditioners on a completely installed basis with a factory guarantee for \$395," explains Nathanson. "We intend to keep them in front of the public all year around by either making mention of them in our weekly newspaper advertising or showing illustrations of them," says Nathanson. "In this way, we feel that we make motorists conscious of us as their car conditioning headquarters."

LAY-AWAY PLAN PROMOTES UNITS YEAR-ROUND

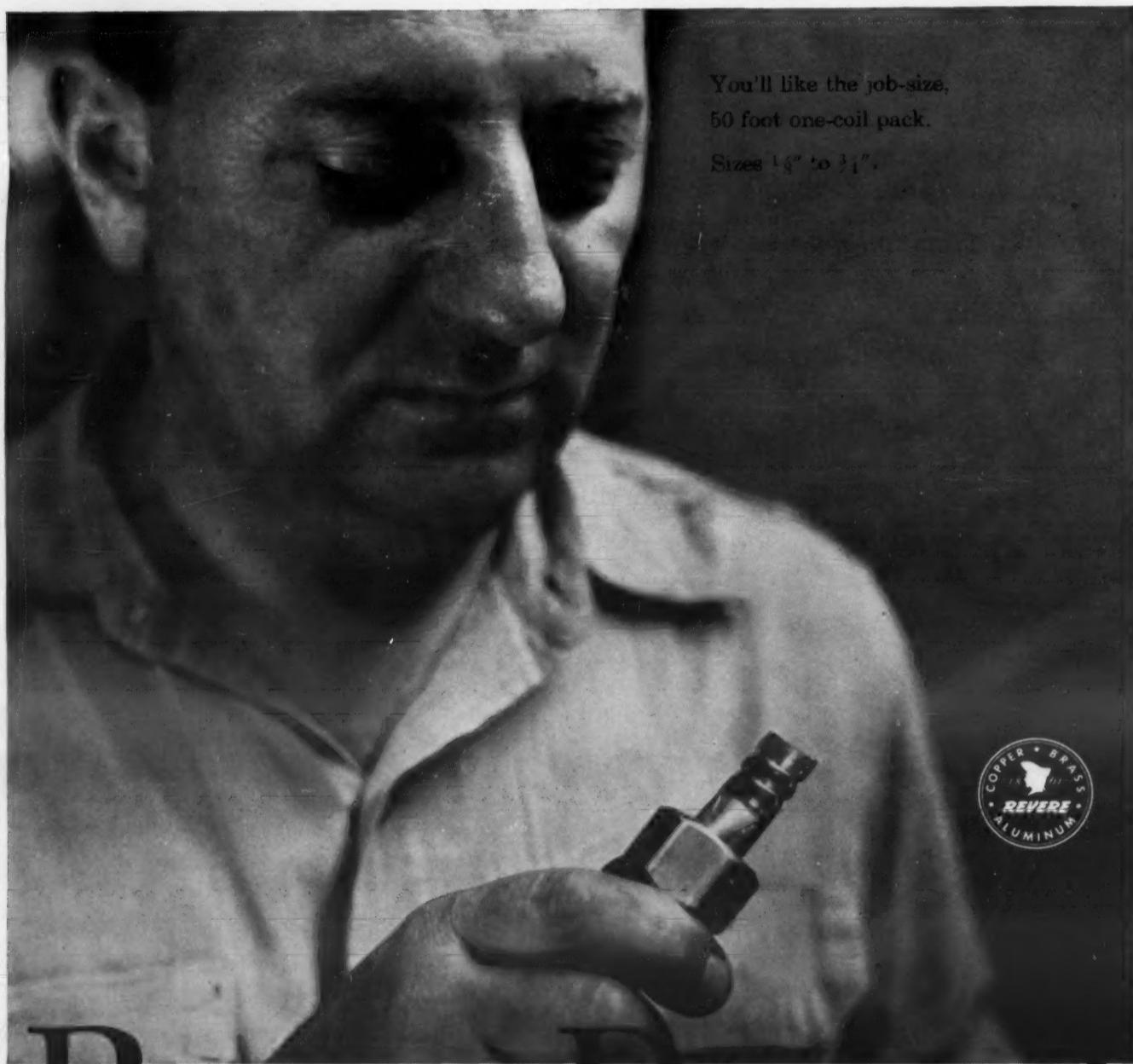
To start off the season with a "push," this appliance dealer intended to promote air conditioners on the lay-away plan.

"We don't actually have to put aside an air conditioner for the car," says Nathanson, "only take the order and have the customer make regular his payments."

Then, when the time comes to install the unit, they can either pay it off or finance the balance. We feel that any time of the year is a good time to promote air conditioners on the lay-away plan."

Motorists are told that regardless of the make of car that they will own when the unit is ready for installation, it will be installed.

Tube-Size crimp



Revere Dryseal

COPPER REFRIGERATION TUBE

You'll find a Revere Distributor close at hand.

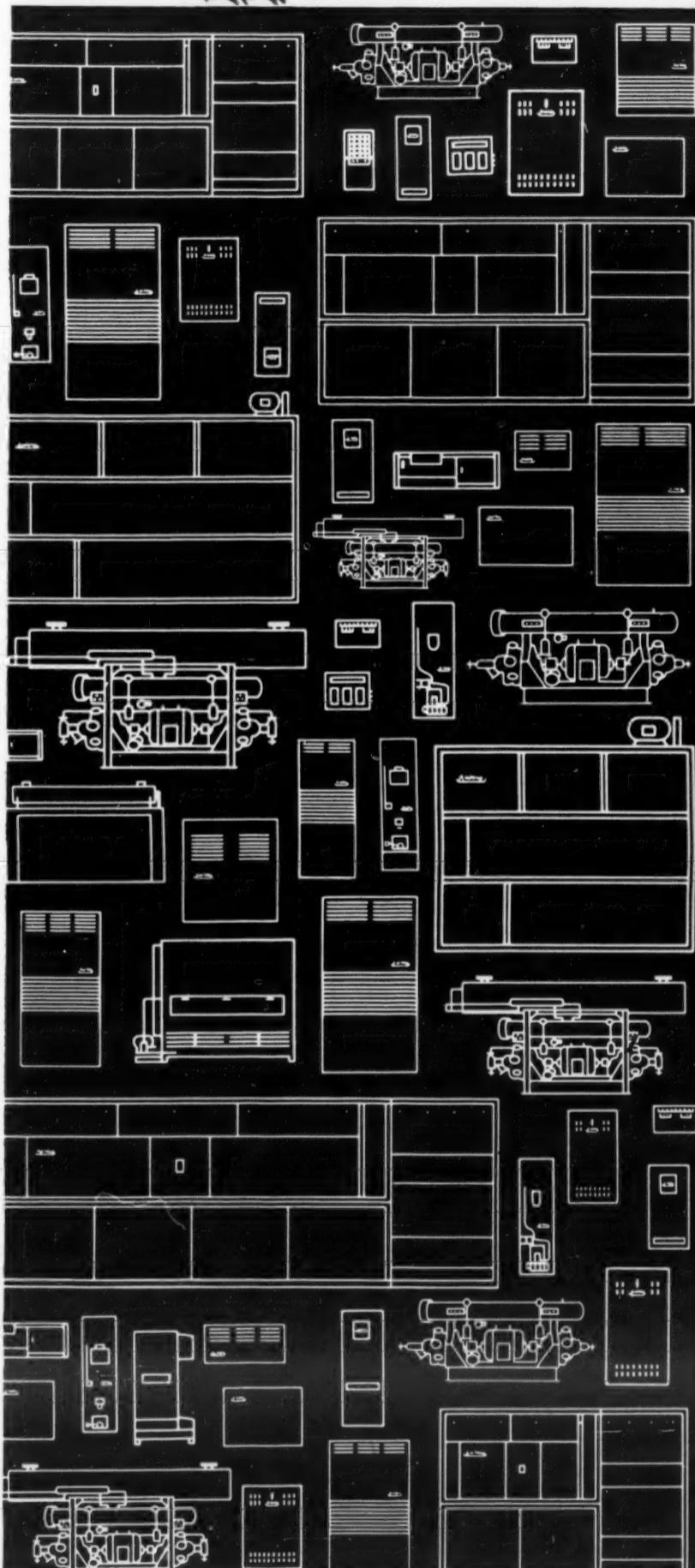
REVERE COPPER AND BRASS INCORPORATED, founded in 1801 by Paul Revere

For more information about products advertised on this page use Information Center, page 20.

MIGHTY MITE
MOTOR PROTECTORS

FOR MOTOR OVERLOAD PROTECTION

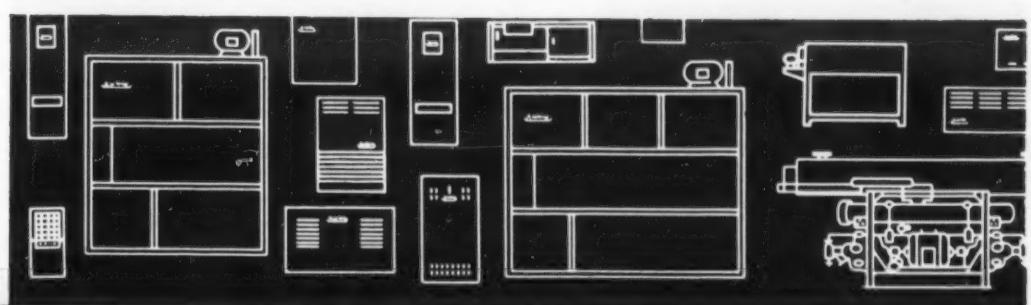
MECHANICAL INDUSTRIES
PRODUCTION COMPANY
223 ASH STREET • AKRON, OHIO



NEW! AIR-COOLED! capacities up to 30 TONS!

Now Airtemp dealers can offer big-tonnage, air-cooled air conditioning. New 11, 15, 20, 25 and 30 HP models . . . plus 2, 3, 5 and 8 HP sizes.

For more information about products advertised on this page use Information Center, page 20.



MORE MORE MORE
MORE MORE MORE
MORE MORE MORE
MORE

WAYS TO SATISFY YOUR CUSTOMERS!

... with Chrysler's AIRTEMP
heating and air conditioning



AIRTEMP'S NEW CAR AIR CONDITIONER
is compact, convenient. Fits under dash, not in trunk. Car owners love it. Sales are skyrocketing right now! So get your share of these profits with an Airtemp franchise.

With Airtemp, you can air condition anything—from a skyscraper to a car.

Airtemp offers you the broadest line in the industry—including every type of room, residential and commercial air conditioning . . . plus gas and oil furnaces. Engineered and guaranteed by Chrysler for efficient, trouble-free performance. Your customers stay satisfied!

Choice franchises still available—
send coupon for information.

Airtemp
DIVISION
CHRYSLER CORP

AIRTEMP DIVISION, Chrysler Corporation
Dayton 1, Ohio

Gentlemen: Please rush full information on the Airtemp franchise!

NAME _____

ADDRESS _____

CITY _____

ZONE _____ STATE _____

Air Passes Radiator at Over 125°

Vapor-Lock Problem Due to Overheated Fuel Plagues Auto Conditioner Owners with Lower Fuel Volatility

DETROIT—Increased public acceptance of automobile air conditioning, coupled with lower hood lines, larger and more powerful engines taking up more space under the hood, introduces the problem of vapor-lock due to overheating of fuel within the fuel pump and fuel lines located in the engine compartment.

In a discussion of the problem at the recent summer meeting of the Society of Automotive Engineers, held at Atlantic City, J. G. Lillard and T. G. Lipscomb of the Humble Oil & Refining Co., cited the results of tests on 29 1956 automobiles, representing 12 makes of the so-called "big three," of which 19 were equipped with factory-installed air conditioning.

The tests were calculated to determine the volatility requirements of fuels for cars with air conditioning installed.

PROBLEM NOT NEW

Vapor-lock is not new to the auto industry. The problem has been met and solved before, but this time it was not a question of moving the fuel lines away from heat sources or shielding the fuel pump from a hot manifold. The fuel system is exposed to extreme heat right in its natural environment, under the hood, where the major air source is through the radiator.

With an air conditioner condenser blocking passage of air entering the already too hot with two-barrel carburetors. engine room the fuel system is

exposed to heat sufficient to reduce the volatility limit of the car by approximately .6 lb., Reid Vapor Pressure.

When the air conditioner is operating, the air passing through the radiator into the under-hood area is well above the 125° F. temperature of the condenser, which is located in front of the radiator, even before it enters the engine compartment. This, added to the heat generated by the engine itself, lowers the car's volatility limits another 1.3 lb., RVP.

The tests showed that cars equipped with four-barrel carburetors had a volatility advantage of 5 lbs. RVP, over the cars with two-barrel carburetors. Also, the 1956 cars proved to

be somewhat more critical than their 1955 counterparts.

Increasing use of four-barrel carburetors tends to offset this trend to some extent, it was noted.

Results of the tests indicate that some of the customer complaints, mistakenly blamed on vapor lock, might be avoided by periodic inspection and cleaning of the entire fuel system, if needed. This to include the fuel pump (pressure and flow check), the automatic choke, and the heat supply, as well as the jets, the more frequently suspected functioning part.

DRIVERS SENSITIVE

An opinion survey of owners and drivers of the cars tested indicated that the car drivers are surprisingly sensitive to minor engine malfunctions but are reluctant to have them corrected, and that the average driver is unable to distinguish between true vapor lock and

mechanical difficulties. Where true vapor lock was known to exist there was a 90% correlation between the survey and the test results, Lillard and Lipscomb said.

Each manufacturer has at least one car that offers excellent vapor lock protection showing that the know-how does exist, but that for reasons yet undisclosed this protection is not available on all makes offering air conditioning, they noted.

FAN REGULATOR

(A few makes of cars have automatic fan regulators and smaller size fan pulleys attached, so that higher fan speeds are obtained at low car speeds when air circulation through the condenser coil and the car radiator is not sufficient for adequate cooling.

This type of fan has the added feature of an automatic-releasing clutch that disconnects the fan at higher speeds, when forward motion of the car forces enough air through the radiator and condenser for proper cooling. Since the fan draws up to 10 hp., this is a definite power saver.)

Car makers estimate that, by 1962, 25% of all new cars will come from the factory with air conditioning installed, according to statistics cited. This figure is a projection of the rate of increase in air conditioned cars up to the end of 1956.

The estimated total of air conditioned cars on the road by 1962 is 7,989,000, which is about 25.3%. These estimates show that by 1962 about one fourth of new car production will be air conditioned and about one out of every nine cars of all ages will be equipped with air conditioning.

Prior to the 1957 model year the demand for auto air conditioners was centered in the southwest, mainly Texas, and installations were largely confined to the higher priced cars.

Demonstration Sells Auto Cooling Idea

NEW ORLEANS—A two-minute demonstration can be a big help in selling a prospect on auto air conditioning, according to Fred Gilbert of Gilbert Appliance Co., "Vornado" dealer. And here's how he gets the prospect inside his car for a demonstration.

Gilbert parks his station wagon in the hot sun at the door of his store. Large-lettered signs on the car proclaim, "This car is equipped with Vornado automobile air conditioning. Step in and try it."

Gilbert seats his prospect in the stifling car and shuts the door. Then he demonstrates how quickly the car becomes comfortably cool. The demonstration invariably sells the customer on the idea, even if he doesn't buy on the spot.

But Gilbert states that he sold one unit the first hour the signs were used.

Augusta Auto Service Adds Car Air Conditioner Line

AUGUSTA, Ga.—Davison's Auto Service, billed as "Augusta's only complete one-stop auto service," has recently added "Vornado" automobile air conditioners to its line.

WHY PAY MORE FOR CONDENSER CLEANER WHEN THE BEST COSTS 30% LESS?

ANCO CONDENSER CLEANER is second to none for effectiveness, speed and safety, yet it costs about 30% less than other leading brands. This exclusive formula is simply dissolved in the sump while the system is in operation. Within a few hours, the condenser tubes are free of scale and head pressure is down to normal. ANCO is safe for servicemen to use and absolutely harmless to equipment. So why pay more when you can't buy better? Buy ANCO CONDENSER CLEANER and make more profit on every cleaning job.

WATER TREATMENT MANUAL

A complete booklet on the control of scale, rust and algae in refrigeration and air conditioning systems. No service department should be without a copy. It's yours for the asking.

FREE!

Sold by wholesalers of air conditioning and refrigeration supplies

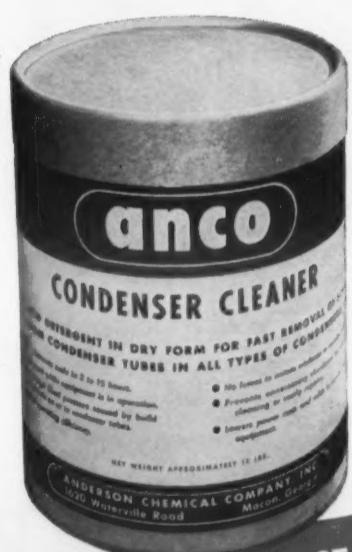
SPECIALISTS IN MAKING
WATER BEHAVE



Anderson Chemical Company, Inc.

Box 1424 • MACON, GEORGIA • Phone 2-7962

COMPARE THE COST
This 12-pound carton costs
less than the 10-pound
carton of other leading
brands.



Auto Air Conditioner Survey--

(Concluded from Page 1) Although reluctant to give out actual figures, Lincoln indicates it has installed air conditioners in 21.8% of all cars manufactured since the model year opened last October. This surpasses the 16.2% total for the entire 1956 model year. Sources close to the company said the firm will "probably produce" about 29,000 cars this year. At 21.8%, this would indicate Lin-

Oldsmobile Div., GMC. Expecting to double the number of air conditioners factory-installed in its cars this year over 1956, Oldsmobile indicated at the present time 10% of production line autos have air conditioning units installed. In cars produced for sale for the southwest, the firm reports 60% have air conditioners installed.

In the model run from last fall through June, Oldsmobile said 31,617 cars have been air conditioned. With an expected 433,000 model year, if the 10% figure holds up as the company believes it will, that would total about 43,300 factory-installed air conditioning units in Oldsmobiles.

Lincoln Div., Ford Motor Co.

In Cooled Cars

Recommend You Add Power, Tinted Glass, Fan Regulators as Extras

DETROIT — Among "extras" recommended by manufacturers for those contemplating a new car with air conditioning are V-8 engines, tinted glass, and fan "regulators."

Since air conditioners and engine fans sap off some of engine's power, they recommend buying an engine with power to spare.

The fan regulator allows the fan to disengage itself at higher speeds, when forward motion of the car supplies sufficient cooling air, without it. This is seen as a power saver.

Tinted glass reportedly reduces the load on the air conditioner by filtering out some of the sun's heat.

7 Narrowly Miss Death as CO Invades Auto Cooler

OROVILLE, Calif. — Seven persons narrowly missed death by carbon monoxide poisoning when, in what is believed to be the first reported occurrence of its kind, the gas leaked into their car's air conditioning system.

Mr. and Mrs. C. A. Lewis and their children, Diane, 12, and David, 10, were driving with Mr. and Mrs. Ray Misquit and their grandson, Raymond, Brown, 3.

As fumes were carried into the auto, Raymond stiffened into unconsciousness. Lewis stopped the car and opened a door. Diane fell out unconscious.

The children revived in the open air so Lewis drove on to his home. All seven collapsed as they entered the house. Lewis revived sufficiently to gasp into the phone for help.

Reprints Available

Hermetic Compressor Design, Development, by Henri Soumeral. Only 40¢ each.

Mail this ad with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

coln will install about 6,300 auto air conditioners in 1957.

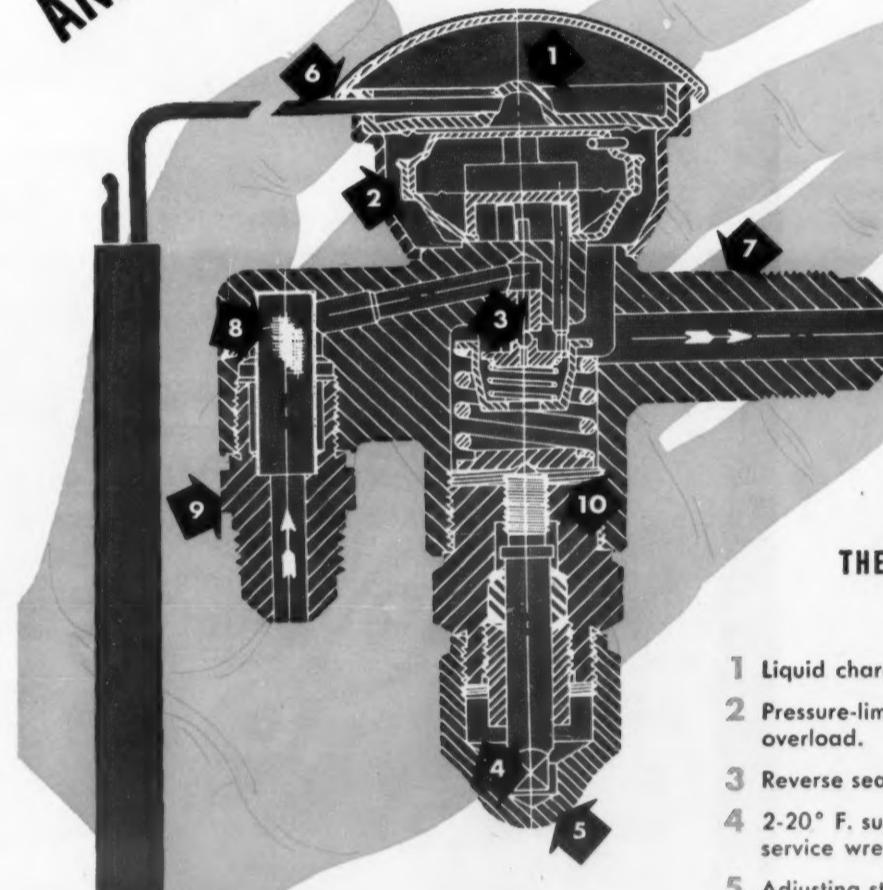
Ford Div., FMC. Here again, hesitation was shown in giving out exact figures. But it was indicated by the firm that since the start of the '57 model run up through May 30, 30,000 air conditioners have been factory-installed in Ford cars. This is quite a leap over the 25,000 installed all last year. Indications are that Ford perhaps will double its auto air conditioner installation this year. Mercury

Div. refused to give out any data on its installations.

Dodge Div., Chrysler Corp. Since new models were introduced last November, Dodge reports orders for air conditioning have been running at a steady pace of approximately 800 units a month. To date, customers have ordered 6,600 air conditioning units on Dodge cars, the company said. Demand has soared over 500% over last year, 5,000 already manufactured. It expects to produce 8,000 or more cars all last year.

In addition, Novi Equipment Co. in nearby Novi, Mich., which makes air conditioning units for many different cars, reports that production this year is about equal to last year, with 5,000 already manufactured. It expects to produce 8,000 or more in the auto model year.

count to ten...
AND YOU'LL INSTALL AN ALCO 402 THERMO VALVE



IF THERE'S
ROOM FOR YOUR HAND,
THERE'S ROOM FOR
AN ALCO 402

- 1 Liquid charge—valve mounts at any angle.
- 2 Pressure-limiting element prevents motor overload.
- 3 Reverse seating gives smooth feed at all loads.
- 4 2-20° F. superheat adjustment fits standard service wrench.
- 5 Adjusting stem seal cap.
- 6 Capillary at side allows more head room in mounting.
- 7 Rugged forged brass body takes long, hard use.
- 8 Removable strainer can be cleaned in 2 minutes.
- 9 Standard wrench flats on inlet and outlet.
- 10 Compact construction—minimum of internal parts.

SEE YOUR ALCO WHOLESALER



ALCO VALVE CO.

853 KINGSLAND AVE. • ST. LOUIS 5, MO.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)
refrigerators. It's a "step-up" business.

Experience-Tested Logic

Nearly everybody "in the know" recognizes The Sidles Co. of Omaha, Nebraska (and points West) as being a dominant distributorship in its area. Hence, we hope that the experience-tested logic expressed in the following letter will be heeded.

Sidles Co.
Omaha, Neb.

Editor:

Pull up a soft cushion and sit down!! "What's wrong with our Industry" is a subject that requires copious quantities of time to aid digestion.

First, I've read you—literally and slangily—for many years and agree 100% with your efforts of late. Your editorial on pricing hit one of the nails on the head, and the salesmanship editorial is another firm punch. What's wrong?

1. Lack of salesmanship
2. Poor pricing (or lack of pricing)
3. Greed at all levels
4. Unethical procedures
5. Egocentricity
6. Public Ignorance

Let's look closely. (1) Nothing can be added to your comments on salesmanship because we, as a whole, are pretty bad, and we've had horrible examples from the factories on down. (2) Pricemanship is another topic you've covered with distinction. But one contributing factor is being overlooked. Competition, ignorance, desperation, and poor salesmanship have been covered as factors affecting depressed prices.

Factory training (primarily along the pricing lines) of the newcomers is another—which brings us to item 3, GREED. In their zeal to avoid being priced out of the market, factories are advocating and publishing gross profit margins for dealers and distributors that are lower than manufacturer's net before taxes!! Can this be solid building? In some areas, distributors are equally guilty. No factory or distributor is any stronger than its supply lines to the ultimate consumer.

Also, in their greed to capture immediate sales at the cost of future good will, manufacturers are grabbing anything that will pass as a dealership. Recently I heard the head of one of our giants in the industry brag that they had signed up 28 new dealers in the last four months in a metropolitan area in the midwest. How good can all these dealers be? What can each of these 28 add to our industry? How many of these 28 even know as much about this business as the people they are selling? They have 28 new names, but I venture to add that they have no more than 2 or 3 new good outlets.

Our business is not a big mystery, but it does require training and in the hands of a novice, the buying public can really be "schnooked." Lower the age of driver's licenses and you'll sell more cars—bloody as the results would be, unit

sales would increase!!—and the liquid our industry is bathing in today is too red for bubble bath.

In most localities, any individual who has the artistic ability, or the where-with-all to hire it, to paint "Air Conditioning Specialist" on the side of a truck, is in business, provided he has the loot or credit to pick up a unit from a local distributor or factory branch.

The only question is "Let's see the color of your money." No mention of qualifications, ethics, responsibility, past service, future plans, location of installation or even actual location of the purchasing dealer. These are the people who are eulogized in national advertising with "Go see your 'Wringsum Air' cooling specialist who is a leader in his community and a *factory trained engineer*." His factory training consisted of learning what to put in "Pay to the Order of"

Greed, I say, is a contributing factor to our demise. It ties in closely with unethical procedures, as pointed out in acquisition of "dealers," actual and erstwhile. Unethical pricing practices that create distrust that has been rampant.

Also, unethical methods which completely befuddle an already confused public by false claims, fake standards, misleading ads and, again, poor dealers are a curse.

Because of the rapid appointment of dealers who are completely untrained in the art of application or system design, the public is again confused by the "trip to the moon" claims of these self styled and factory lauded specialists. Result is that system efficiency and design are deteriorating even more rapidly than the manufactured product. No equipment, regardless of manufacturing perfection, is any better than it is applied or main-

tained, and strictly because of importance of local representation, service and dependability. We have represented the same manufacturer since 1935, having 150 dealers and one captive retail account, and have seen many changes. On some points, our supplier is as guilty as others, for which we make no apologies except that the virus is humanly infectious. Our industry reminds us of that bird that flies faster and faster in smaller and smaller circles until it catches up with and eats itself and disappears.

Someone has to get our course straightened out. It can't be done at the local level, nor can you do it. You can be the instrument, the big gun or the bomb that will jolt the big boys out of their self-centered lassitude. Dr. George, line us up and give us our shots before the last vestige of morality succumbs to the internal rot.

R. E. MASON

Why Admiral uses Bundyweld Tubing



The evaporator in the Admiral Model D-950 refrigerator is of new design. Its self-supporting coils need no plate-type reinforcement; can be fabricated faster, at lower cost. Bundyweld's unique physical properties helped get the design off the blueprint and into production.

BUNDYWELD IS DOUBLE-WALLED FROM A SINGLE STRIP



Bundyweld starts as a single strip of copper-coated steel. Then it's . . .



continuously rolled twice around laterally into a tube of uniform thickness, and



passed through a furnace. Copper coating fuses with steel. Result . . .



Bundyweld, double-walled and brazed through 360° of wall contact.



NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead, and less chance for any leakage.

Co-op Ad Promotes G-E Wall Model Refrigerator-Freezers In St. Louis

ST. LOUIS—General Electric's new wall refrigerator-freezer combination was promoted in a 3/4-page display ad in the *Post-Dispatch* recently.

The ad, a cooperative endeavor sponsored by General Electric Appliances Co., a department of General Electric Co., and listing 52 G-E dealers in Missouri and Illinois, featured a \$100-off introductory offer.

Distributor's recommended retail prices were listed as: regular price, \$599.95; 60-day introductory price, \$499.95. Readers were urged to "see your G-E major appliance dealer for his special terms and prices today!"

The new unit, prominently illustrated in the ad, "can be Thoroughly July, however, de-hung like a picture above a sreable characteristics noted for

Campaign In San Diego Accents Combinations

SAN DIEGO, Calif.—Promotional accent by the Bureau of Home Appliances of San Diego county this month is on combination refrigerator-freezers, rather than freezers alone, the organization announced.

In August exclusive freezer promotions will resume, it was added, to be carried on through September and October.

Throughout July, however, de-hung like a picture above a sreable characteristics noted for

the true combination will be presented over the "Weatherword" television program. Similar recognition will be given during the weekly "Homemaker of the Week" TV show, it was reported.

Warm Weather gave a boost to sale of all air conditioning units in this territory, it was also pointed out. The advertising program sponsored by San Diego Gas & Electric Co. and the bureau was said to have given an important assist. The air conditioning story was carried during the week of July 15 in area weeklies, with some television support, and a direct-mail series covering the subject was sent out to commercial and industrial prospects, it was added.

Felix Brown Dies at 72

LOS ANGELES—Felix Brown, 72, retired refrigeration engineer, died recently.

Philadelphia Promotion Stresses Zero Degree Freezer Compartments

PHILADELPHIA—A promotion to stress selling refrigerators with zero degree freezer compartments instead of the "evaporator-type" freezer section was recently conducted here.

Dubbing the unit "Refreezerator," the Electrical Association of Philadelphia, Philadelphia Electric Co., and the entire local industry launched a two-month campaign which ran from May 13 to July 13.

With wholehearted support from refrigerator distributors, the Refreezerator campaign was designed, developed, and set in motion in the short space of three weeks. Sales meetings were held in each of the 12 participating distributors' offices to familiarize sales personnel with details of the plan. Brochures

outlining the activity were sent to all dealers in the five-county participating area.

Placing emphasis on the "top of the line" refrigerator product—the 2-in-1 combination unit—the promotion stated it: 1) quick-freezes food; 2) safely holds frozen foods up to one year; 3) stores ice cream at "just-right texture"; 4) freezes all the ice cubes desired "in a jiffy"; and 5) provides the convenience of more freezer storage right in the kitchen refrigerator.

Over \$150,000 was spent by the association, the utility, and major distributors promoting these brands: Admiral, Amana, Coldspot, Frigidaire, General Electric, Gibson, Hotpoint, Kelvinator, Leonard, Norge, Philco, RCA Whirlpool, Revco, and Westinghouse.

As a direct benefit of his participation in a program at a cost of \$15, the dealer received up to \$100 as part payment of his own advertising, in any newspaper of his choice, featuring his own brand of Refreezerator.

However, the dealer had to use a mat of the logotype in his advertising to gain the tie-in benefit in the local activity. He must also send in tear sheets of all his published ads, together with a bill from the newspaper to be eligible for the return of 25% of space costs up to a maximum \$100.

EAP supported the dealers with two half-page ads in two daily Philadelphia newspapers and a full page in another.

Philadelphia Electric supported the promotion by taking three three-quarter page ads in two dailies and a full page in the third covering all makes of Refreezerators in the campaign; promoting the campaign in 120 local neighborhood newspapers; promotion on a television program and 10 radio stations; and taking a "double truck" full center spread ad in "Live Better Electrically" magazine mailed to 135,000 homemakers living in the area.

In addition, the participating dealer got the following: colorful full-size displays for window or floor featuring the unit sold in his store; acetate stickers for the doors of Refreezerators for identification and attention; stickers to identify the "true zero" compartment in the unit; and display easels for counter or shelf which list each brand and model of units that qualify as Refreezerators.

New Orleans Uses 'Frees Her' Theme

NEW ORLEANS—The "Frees Her" theme is applied to a campaign on home freezers and combination refrigerator-freezers being conducted by Public Service and cooperating dealers and wholesalers, it was announced.

The campaign got its "kick-off" at a breakfast meeting held at the Roosevelt hotel. It will run to Aug. 17.

Results will be announced at a final meeting Aug. 27. The most successful salesmen will receive awards in accordance with a plan announced at the breakfast meeting.

for this new, low-cost evaporator

Bundyweld's economy and ductility contribute to a new concept in freezer-compartment design

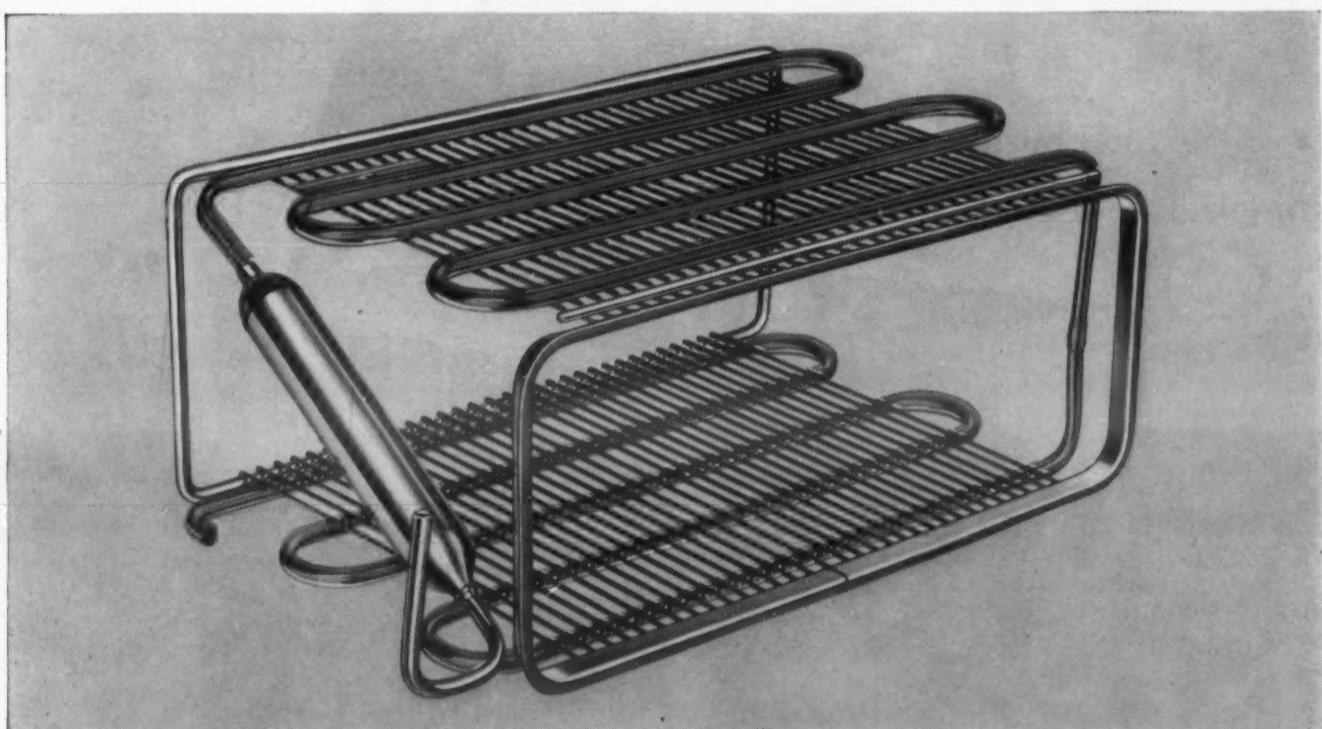
Admiral Corporation designed a new, low-cost evaporator, in which the coils were self-supporting. It required tubing economical enough to make the cost-cutting design pay off; ductile enough to take right-angle bends without collapsing or leaking. So naturally, Admiral specified Bundyweld® Tubing.

Bundyweld's unique physical properties have been the answer to many a designer's nightmare. It's the only tubing double-walled from a single copper-coated steel strip, and metallurgically bonded through 360° of wall contact. Result: tubing with high tensile strength . . . high bursting strength . . . superior resistance to

vibration fatigue—tubing that is *leakproof by test*.

And Bundy, offers you even more than finest quality tubing. Modern fabrication facilities will turn out simple or complex shapes, to your specifications. You'll get on-time deliveries to help you maintain tight production schedules. And engineering assistance—from a staff famed for solving tubing problems—is yours for the asking. If you make evaporators, compressors, or condensers, Bundyweld Tubing and Bundy services can team up to save you time and money. Call, write, or wire us today.

BUNDY TUBING COMPANY, DETROIT 14, MICHIGAN



Admiral Corporation designed this highly efficient, low-cost evaporator; turned to Bundy's modern fabrication facilities for mass production of the serpentine coils. Bundy offers you fast service, on-time delivery, free design aid. Bundyweld Tubing is shown here in its natural copper color.

BUNDYWELD® TUBING

Bundy Tubing Distributors and Representatives: Massachusetts: Austin-Hastings Co., Inc., 226 Binney Street, Cambridge 42 • Pennsylvania: Rutan & Co., 1 Bala Ave., Bala-Cynwyd • Midwest: Lapham-Hickey Steel Corp., 3333 W. 47th Place, Chicago 32, Ill. • South: Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg., Chattanooga 2, Tenn. • Southwest: Vinson Steel & Aluminum Co., 4600 Singleton Blvd., Dallas, Texas • Northwest: Eagle Metals Co., 4755 First Avenue, South, Seattle 4, Wash. • Far West: Pacific Metals Co., Ltd., 2187 S. Garfield, Los Angeles 22, Calif. • Pacific Metals Co., Ltd., 1900 Third Street, San Francisco 7, Calif.

Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.

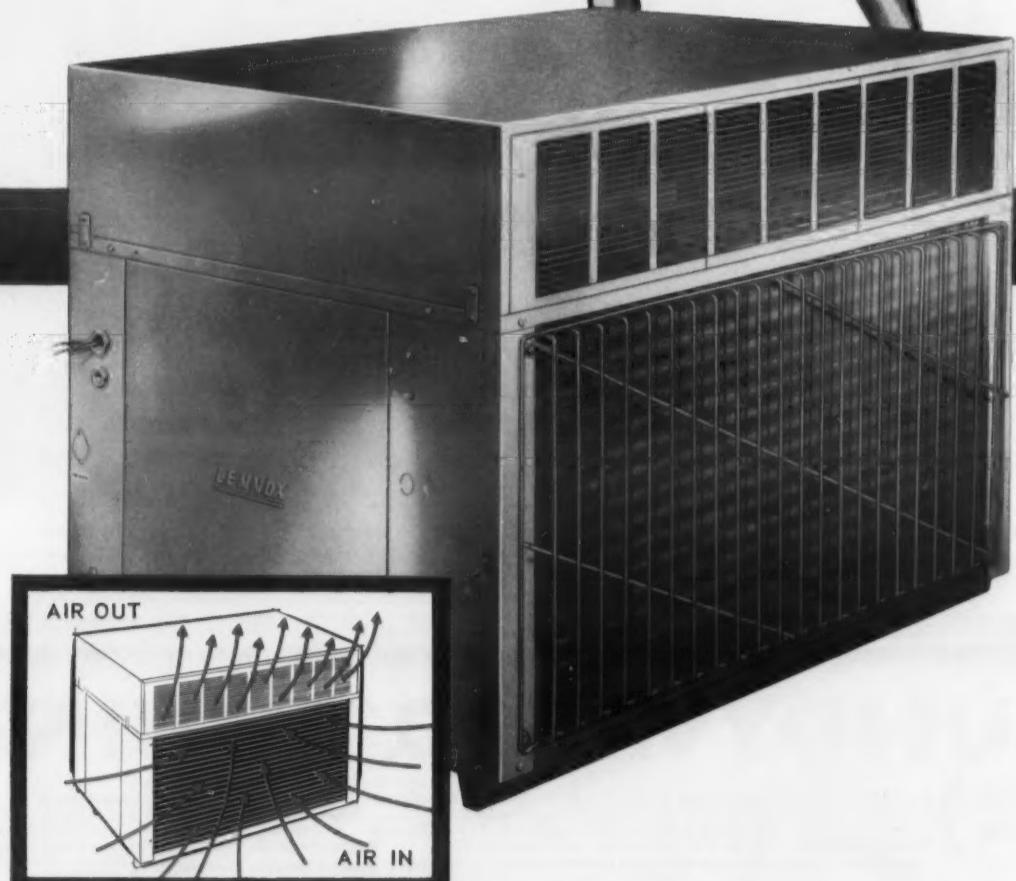
WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, ENGLAND, FRANCE, GERMANY, AND ITALY

For more information about products advertised on this page use Information Center, page 20.

NEW from the



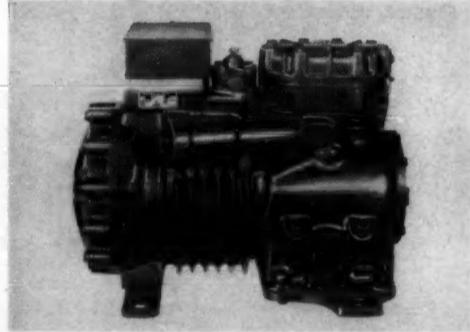
A whole new world of installation possibilities is opened up with the new Lennox condensing units. You can bury them in walls, building foundations, carports, or put them out in the open. Optional hood provides for air intake and discharge on the same side, with *no possibility of re-circulation*. There's no danger of killing shrubs or scalding grass. Without hood, air can be ducted in and out.



SOUND up!

**NEW 4-TON CONDENSING UNIT . . .
full 48,000 Btu/h capacity (with 95° air entering condenser)**

**Another LENNOX First in
Air Conditioning Design!**



NEW "JOB-MATCHED" COMPRESSOR

The Lennox super quiet and serviceable compressor was built for this specific 4 ton unit—the same rugged, durable semi-hermetic design that has set new standards of quiet, economical, trouble-free operation under the toughest operating conditions in the field.

For those 3½ to 4 ton loads — where you've been forced to install 5 ton units at substantially greater cost — here's the perfect answer. The all-new Lennox 4-ton unit has been designed to fill this gap in equipment sizing. Now Lennox offers air-cooled equipment — years ahead in design — in these Btu/h sizes: 23,300; 34,100; 39,250; 41,700; 48,000; 58,100; 82,000; and 114,000 . . . each one honestly and conservatively rated at 95°, A.R.I. standard conditions.

It's another reason Lennox Comfort Craftsmen have the solution to every air conditioning problem.

MAIL THIS POSTAGE-PAID CARD TODAY FOR FURTHER FACTS . . .

LENNOX Industries Inc.

 *Established 1895*

Marshalltown, Iowa • Columbus, Ohio • Syracuse, N.Y. • Fort Worth, Texas
Salt Lake City, Utah • Los Angeles, Calif. • Decatur, Georgia • Des Moines, Iowa
Lennox Industries (Canada) Ltd.—Toronto, Montreal, Calgary and Vancouver

Contaminants In Refrigeration Systems-2

Problem of Cleanup After Motor Burnout Resolves Into Flushing, Filtration, Adsorption; Mfrs. Method Outlined

The Contaminants Conference at the recent annual meeting of the American Society of Refrigerating Engineers offered much information on the cause and nature of contaminants in refrigeration systems, especially those using hermetic condensing units.

The first section of this two part article was concerned with the causes and nature of contaminations. This second part reports the discussion presented by J. D. Bopp and E. A. Beacham of Ansul Chemical Co., and explains how to clean-up and put a system back into operation following a motor burnout caused by contamination.

Much of the evidence on how to solve it. Many half way motor burnouts in operating measures have been tried with equipment is circumstantial, but appears to be assuming rather well defined patterns. For example, many believe wet systems or the results of wet systems are a part of motor burnout history. Recent work with a retail food supermarket chain which has been experiencing an undue incidence of burnouts tends to bear this out.

Considerable analytical work has been done for this food chain in determining moisture in oil taken from operating machines. The client furnished the oil samples in glass. They did not require moisture analysis of the refrigerant. One such series of analysis covering 39 machines in different stores ranged in moisture content from 28 ppm. to free liquid water.

Showed Very High Moisture Content

Ignoring the samples of free water, the average moisture content was 179 ppm. with only three samples showing less than 50 ppm. Even if some allowance is made for contamination during sampling this is a very high moisture content.

The experience of one burnout, contributing to a succeeding burnout, was further supported by their records showing several instances of successive burnouts on the same system.

Case histories of this type are not difficult to obtain. These analytical results are typical of many similar histories in our files.

A contractor, however, when confronted with a burnout has little interest in the pre-burnout history. His problem of removing water, HCl, carbon, sometimes hydrofluoric acid, copper and iron salts, resins, gums, and varnishes to prevent additional burnouts leaves him little enthusiasm for pre-burnout refrigeration chemistry.

Indifferent Success With Halfway Measures

What went before is ancient history. He has a problem and most contractors do not know

able acidity is produced as a result of a burnout. The refrigerant is subjected to high temperatures in the presence of oil, and usually decomposition of both refrigerant and oil takes place, with the production of hydrochloric acid, water, and in severe cases, hydrofluoric acid.

May Cause Burnout

Sufficient acid is produced to be the probable cause of a second burnout in four to 12 months. The third burnout may occur in two months, the fourth in two weeks, and the fifth in two to four days. Cases are on record where the third burnout occurred in two days.

Remove Acid, Clean System

If, however, the acid is removed after the first burnout and the system cleaned of the decomposition products, the succeeding burnouts usually do not occur.

Much effort has been expended to remove acid and other decomposition products by flushing and evacuation, but, in general, this procedure alone has not prevented further burnouts. Due to headered coils and other peculiarities of construction, flushing and evacuation does not remove enough of these contaminants.

The problem of clean-up resolves itself into one of flushing, filtration, and adsorption. The solution of this problem obviously takes time to accomplish and is not a one stop affair.

Recent conversation with manufacturers, revealed that only after following the com-

plete clean-up procedure and eliminating shortcuts could they obtain consistently favorable results. Wholesalers who have insisted that the procedure be followed in its entirety have been able to achieve a sharp drop in their inwarranty replacements.

A Method for Removing Contaminants

A method has been employed with consistently satisfactory results which embodies flushing out gross quantities of decomposition products and the application of a permanent filter drier installation in the liquid line, and, if at all possible, a temporary filter drier installation in the suction line.

The suction line installation is necessary to protect the new compressor from any material which may have lodged in the low side of the system.

(Concluded on next page)

HALSTEAD & MITCHELL ENGINEERS SAID...

"TURBU-FLO AIR-COOLED CONDENSERS PERFORM BETTER"



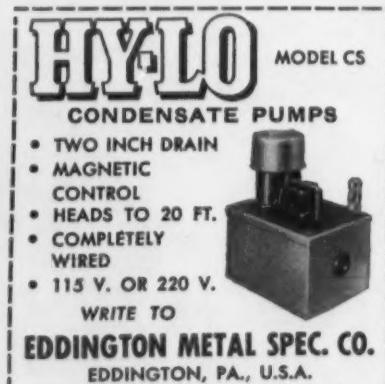
Type AC—Commercial Air-Cooled Condenser

Extra-large coils and exclusive Turbu-Flo fins add more coil surface. Embossed fins create better "air wash," thus reducing air film resistance and increasing heat transfer by up to 15%. Wide fin spacing—six per inch—keeps coils from clogging with dirt or other air borne particles, assures lasting high performance and lowest maintenance costs.

Sturdy, lock tight construction with double-coated vinyl finish makes H&M Air-Cooled Condensers last years longer—without vibration and rattling. Slow speed, deep pitched fans and draw-through design provide full capacity—quietly.

Because of these facts, Halstead & Mitchell Air-Cooled Condensers are in greater demand than ever. Write for Catalog AC-101 for complete details on Remote Air-Cooled Condensers; ACR-100, on Residential. *Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pennsylvania.*

HM
Halstead & Mitchell



For more information about products advertised on this page use Information Center, page 20.

Refrigeration System Contaminants--

(Concluded from preceding page)

The drier filters out circulating solids, and absorbs water, acid, oil breakdown products, and other contaminants.

Leave Driers In Line 48 Hours

We recommend that both driers be left in the line for 48 hours after which the liquid line drier should be changed and the suction line drier removed.

Suction line driers, as a rule, are not recommended for permanent installation because any introduction of pressure drop in the suction line reduces machine capacity.

A moisture indicator should not be used until after the first 48 hours of clean-up because the initial high acidity may affect the indicating element.

CLEAN-UP PROCEDURE

Stepwise the procedure is as follows:

1. Discharge oil refrigerant mixture in liquid phase.

2. Remove burned out compressor. CAUTION—Do not put hands in oil or handle any sludge with bare hands.

3. Flush coils and condenser with:

- a. Mineral spirits or Refrigerant-11 using either nitrogen or refrigerant pressure.

- b. Flush coils and condenser with dry liquid refrigerant.

- c. If possible, flush receiver with dry liquid refrigerant.

4. Install new compressor.

5. Install a capped off tee connector or a jumper, if an in-line drier is to be used, in the

liquid line and if possible also in the suction line.

6. Triple evacuate breaking final vacuum with dry refrigerant to 0 gauge.

7. Install the drier cartridges.

8. Charge the machine through the drier.

9. Operate for 48 hours.

10. Check color of oil. Change oil if discolored.

11. After 48 hours of operations, remove suction line drier and change the liquid line drier. Only at this stage may a moisture indicator be first applied.

12. Dry until the indicator shows a dry condition.

13. Check color of oil in 14 days. If OK, recheck, in another 14 days. If OK, job is done.

14. If first 14-day check shows discolored oil, change both oil and drier and recheck in 14 days. Continue until oil remains clear for 30 days. A blue or green indicating element (de-

pending on the refrigerant) and clean and clear oil are good field proof that the equipment is clean, dry, and acid free.

In summary, this procedure is based upon several years' successful field application. The method is possibly arduous and expensive, but so is loss of several compressors, produce, sales, and valued customers. There are short cuts but like building construction, or any other craft, it can turn out to be a house of cards. Bitter experiences have born this out.

Tomb for Two

ALBUQUERQUE, N. M.—An old refrigerator became the tomb of Vickie Sue Owens, 5, and her brother, Gary, 2, here.

The refrigerator, its motor removed, was kept behind a neighbor's home for use on fishing trips. The children had been trapped inside overnight.

Revere Packages 2

Coiled Tube Types

With Green, Blue Code

NEW YORK CITY—Revere Copper & Brass, Inc. has taken another step in its color-coding program for copper water tube by now packaging its coiled tube, types "K" and "L," in new octagonal packages with green and blue markings, respectively.

Claimed to be the first company to color-code its straight lengths of copper water tube, Revere has added these colors as an identifying device for its coiled tube, "because they make positive product identification faster, and handling and stocking easier."

The new cartons contain 60-ft. coils of types "K" and "L."

Firm To Add Service on In-Warranty Compressor

NEW YORK CITY—Sealed Unit Parts Co., Inc. here plans to add to its compressor in-warranty service for manufacturers, it was announced recently.

Sid Weiner, vice president, stated "We are now planning to expand this department, since our present facilities are inadequate for this type of work."

The company has been rebuilding sealed unit domes and selling them through refrigeration supplies wholesalers for over 10 years. It offers a "Replacement Sealed Unit Compressor Guide" at no charge for anyone interested.

West Coast Facilities To Serve Tubing Clients

SAN FRANCISCO—New offices and mill depot facilities have been opened here to serve customers of Wolverine Tube, Div. of Calumet & Hecla, Inc.

These service facilities will stock copper water tube, refrigeration tube, and automotive tube. It will be operated by Van D. Clothier, Inc., far western agent for Wolverine Tube.

J. A. Marshall, vice president of Van D. Clothier, Inc., will coordinate all operations from the new offices, which are at 148 Spear St., San Francisco 5, and new mill depot location, c/o Gibraltar Warehouse, 1200 Battery St., San Francisco 11.

MAKE YOUR OWN

SCALE REMOVER

with

VAPCO-HIB

Acid Inhibitor

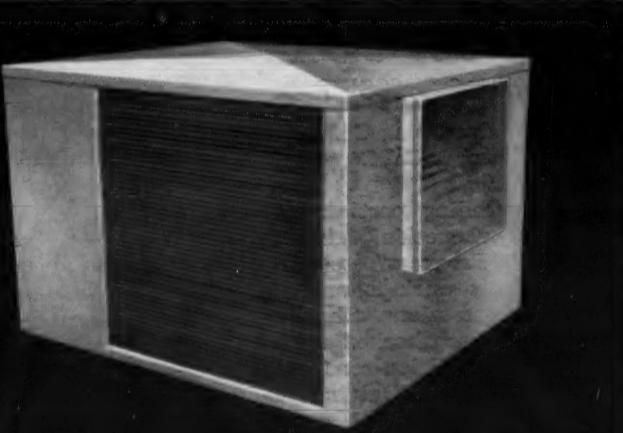
Just add it to muriatic acid. Gives fast, low-cost scaling with unbelievable safety to metal surfaces—even galvanized. Combines efficiency of muriatic acid with safety of a dry powder cleaner.

See Your Wholesaler or Write Today

GARMAN CO., INC.
St. Louis 23, Mo.

SO HALSTEAD & MITCHELL WHOLESALERS SAID...

"TURBU-FLO AIR-COOLED CONDENSERS SELL FASTER"



Type ACR—Residential Air-Cooled Condenser

Turbu-Flo Air-Cooled Condensers are profitable to handle, just as H&M products have always been. Halstead & Mitchell has always had that *something extra* that can be sold—Turbu-Flo Air-Cooled Condensers; Cooling Towers with a 20-Year Guarantee on the wetted deck surfaces against rotting or fungus damage; Cleanable Water-Cooled Condensers.

H&M Air-Cooled Condensers are available in a wide range of capacities for all air conditioning and refrigeration applications. Wide fin spacing, exclusive Turbu-Flo fins, sturdy, rattle-proof construction assure constant high capacity and lowest operating and maintenance costs.

Find out for yourself why Halstead & Mitchell is the best line to handle. More information is yours for the asking. *Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pennsylvania.*

MAIL THIS COUPON FOR MORE INFORMATION

HALSTEAD & MITCHELL, Bessemer Building, Pittsburgh 22, Pa.

Please send more information on H&M Turbu-Flo Air-Cooled Condensers. AC-101 "Commercial" ACR-100 "Residential"

I am a: Wholesaler Contractor

Name _____

Company _____

Street _____

City _____

Zone _____ State _____



They'll
Do It
Every
Time
by
Jimmy
Hatto



Frozen Candy—Another NEW Commercial Refrigeration Market

HERE is good news for commercial refrigeration people:

A relatively new concept of marketing quality chocolates at premium prices—in florist shops, drugstores, gift shops, and bakeries—is undergoing close scrutiny by the nation's candy makers.

Confection manufacturers are banking on *totally frozen* goodies to invade altogether different distributive channels.

Sub-zero display cases, of course, will be needed by all such new-type merchants which are recruited from the ranks of non-food dealers.

Supermarkets, and other normal frozen food outlets, proved to be unsatisfactory when candy makers tried to introduce frozen chocolates in conventional food stores. The latter's look-and-dip freezers already were too crowded, it seems. No room for anything new. Isn't THAT circumstance a challenge to commercial refrigeration dealers?

However, adequate NEW freezer display space for FROZEN candies may be sold to drugstores and confectioneries—also to florist shops and souvenir stores—the candy industry hopes.

Possibly gift shops, railroad and bus terminals, and airports are prospects, too, for frozen candies. In that case they would become prospects for commercial refrigeration dealers as well.

Of course, refrigeration is old hat in the candy industry.

For many years better drugstores have kept chocolates under refrigeration during warm weather. Moreover, most candy producers stockpile stuff, made during the off-sales season, in refrigerated warehouses. Then, when hot spells arrive producers can coast on their backlog of defrosted candy, thus evening up production curves.

These regular manufacturer-dealer practices have cut down peak-season overtime costs, and off-season cutbacks in employment, for the sweet-tooth satisfiers.

Currently, goodies-packagers are going one step farther by experimenting with the aforementioned frozen confections—which can be retailed all around the year.

Observing the booming growth in frozen foods of other types, candy makers see no reason why their frozen desserts and "snacks" can't follow suit. (IF they can get distribution; i.e., low temperature display space.)

Frozen candies cost no more to produce (although special packaging and handling may boost retail prices about 10%), so price isn't the problem. It's the lack of low-temp display space which bottlenecks expansion.

We repeat: Isn't that situation a challenge to commercial refrigeration dealers and salesmen?

Frozen sweets sales still account for only a small portion of the gross of candy makers. Nevertheless, sales of such have climbed every year since inception of the idea, and their potential is mouth-watering.

Two major candy manufacturers produce and retail these frozen items at present on a fairly substantial scale. Undoubtedly more would follow suit if sufficient sub-zero commercial refrigeration display cases were available in every metropolitan trading area, mid-size city, and small town.

Some day these frozen "snacks" will boost volume, and maintain steady year-round production and sales throughout the candy industry—IF commercial refrigeration dealers get up on their toes and help push the idea along.

A Georgia university researcher holds that frozen candy is better candy. He avers that freezing permits higher butter and cream content. It also allows use of chocolate coating which has a lower melting point and contains less preservative—two factors which lengthen shelf life and improve taste.

Here's a great new market for commercial refrigeration!

Ready to follow up, Mr. Commercial Refrigeration Dealer?

COMMERCIAL REFRIGERATION men, turn to special section designed for your needs starting on page 24. This monthly section is in addition to the regular weekly news and feature stories about your phase of the industry.

Highlight of this month's section is a detailed account of the Pick-N-Pay supermarket chain's new warehouse in Maple Heights, Ohio. It is so big that electric scooters are needed to check operations. Dual refrigeration systems serve many of the rooms to protect the firm from food losses.

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Office;
Est. 1926

AIR CONDITIONING & REFRIGERATION NEWS

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F. M. COCKRELL, Founder

The Conscience of the Industry

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VOLUME 81, NO. 12, SERIAL NO. 1,478, JULY 22, 1957

"The mass of people must be barbarous where there is no printing, and consequently knowledge is not generally diffused. Knowledge is diffused among our people by the newspapers."—Sam Johnson, *Boswell's Life*, March 31, 1772.



COURT DECISION SHOCKS 'PEACE, PROGRESS' FAN

J & F Advertising Co.
Hollywood, Calif.

Editor:

I was re-reading portions of George Taubeneck's book, "Peace and Progress" several days ago. This work is one of my prized possessions. Shortly thereafter, I was shocked upon reading of the decision rendered by our Supreme Court, giving, in effect, the green light to some of our misguided citizens who have conspired with a foreign power to deprive you, me, and millions of other loyal Americans of our heritage of freedom.

My oil station man observed to me while cleaning my windshield, "I don't see why we don't call all our boys home and tell Russia to come here and take over." I have since wondered how Mr. Taubeneck and other

patriotic citizens must feel. Enough of the oratory for now . . . but honestly, I have been undergoing a slow burn ever since reading about the historical opinion rendered by our Supreme Court.

J. C. NOFZIGER

SEES EDITORIAL AS GOOD DISTRIBUTOR READING

Federal Refrigerator Mfg. Co.
Waukesha, Wis.

Editor:

We are interested in the possibility of obtaining about 100 reprints of your editorial "Price Cuts Are Root Of Industry Troubles" appearing in the June 10 issue.

I think it is an excellent editorial and we would like to circulate these copies among our fieldmen and some of our larger distributors.

A. T. MICKLE

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, heating, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only \$6.00 per year, 52 issues (U.S. and Canada). Foreign: \$10.00 per year.

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450 W. Fort St., Detroit 26, Mich.

Send the NEWS every week for: One Year \$6. Three Years \$12.
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Men on the Move . . .

Penn Controls, Inc.—C. PHILIP PESTOW, formerly sales engineer in the Philadelphia district, has been named manager of that district office. WILLIAM P. MARSHALL, transferred from Philadelphia, has been appointed sales engineer in the Dallas district.

Drayer-Hanson, Div. of National-U. S. Radiator Corp.—EVELYN McNAMARA has been named administrative assistant in the sales department. She was transferred from the engineering department where she was secretary to the chief engineer.

Acme Industries, Inc.—WILLIAM J. BRINKMAN, who has been in designing, engineering, and sales of air conditioning, heating, and refrigeration systems for several years, and THOMAS O. BLACKMON, a design and sales engineer, have joined the Houston, Texas regional office as sales engineers.

Carrier Engineering, Ltd. (Toronto, Ont., Can.)—Appointment of WALTER SMALLWOOD as sales manager, dealer division, has been announced. He will also fill the post of advertising and publicity manager. He has been engaged in air conditioning and refrigeration since 1930.

Lima Register Co.—Appointment of JOSEPH C. HANGER as district manager of sales in Ohio, Michigan, Indiana, Kentucky, and West Virginia has been announced. He has spent 11 years in the heating industry.

Vilter Mfg. Co. (Milwaukee)—Promotion of FRANCIS PAL-LANCH to district manager of the Minneapolis office has been announced. He was sales engineer for northern Wisconsin and upper Michigan.

Special Products Div., American Motors Corp.—JOSEPH W. ESKRIDGE has been named vice president and general manager of the division. He succeeds STUART G. BAITS, who is retiring. Eskridge has been vice president-manufacturing for the division.

Whirlpool Corp.—ROBERT E. LAKE, manager, research and development, has been promoted to director of technical services for the International Div.

Patterson-Kelley Co., Inc. (East Stroudsburg, Pa.)—GEORGE A. ADLAM has been named to head the new branch office opened in Milwaukee. He has been a manufacturer's representative for the firm.

Fulton Sylphon Div., Robertshaw-Fulton Controls Co.—GIBSON B. MEAD, who served with the Fielden Instrument Div., has been named to the sales engineering staff at Camden, N. J.

Walworth Co. (New York City)—MILFORD H. LUTTRELL, manager of the southeastern division, has been named general sales manager of the firm.

Appliance Controls Div., Minneapolis-Honeywell Regulator Co. (Gardena, Calif.)—RAYMOND S. FRIES, formerly factor manager at Gardena, has been named general manager.

General Electric Co.—NATHAN L. WHITECOTTON, manager-user industries sales, Atlantic district, has been appointed commercial vice president of the firm with headquarters in Philadelphia.

Allis-Chalmers Mfg. Co.—Appointment of HENRY F. BAN-ZHAFF, manager of control sales, has been promoted to assistant to the general manager of General Products Div.

Olin Mathieson Chemical Corp.—JOHN M. WELCH, former district sales manager for Kaiser Aluminum & Chemical Corp. in Chicago, has joined the firm as Chicago regional sales manager for Olin Aluminum.

Environmental Test Unit Mfrs. Get FTC Rules Chicago RACCA To Host '57 Convention Nov. 17

WASHINGTON, D. C.—Trade practice rules for the environmental testing equipment manufacturing industry were promulgated by the Federal Trade Commission recently. They take effect on July 25, the commission announced.

The rules are designed to prevent and eliminate unfair trade practices that violate laws administered by the FTC.

They apply only to manufacturers of environmental testing

equipment, not to those who only install or repair it.

While most of the 16 rules are the same as apply to most other industries, a few are of particular interest.

These spell out prohibited practices of deceptive pricing, misrepresentation as to experience and production capacity, misrepresentation of performance of equipment, misrepresentation of guarantees and warranties, and commercial bribery.

CLEVELAND — Refrigeration and Air Conditioning Contractors Association of Chicago will be host association for the 1957 RACCA convention in the Drake hotel, Nov. 17-19, it has been announced.

Chairman William Long and members of his committee met recently with Ray Kromer, executive vice president of RACCA, on programs and committee plans. Theme throughout the convention will be "How To Make Money."

During the same week in Chicago, there will be the ARI Exposition and several other conventions, it was noted. RACCA indicated members will receive full information on the convention in August so they can make early reservations.

A block of rooms at the Drake has been reserved for members.

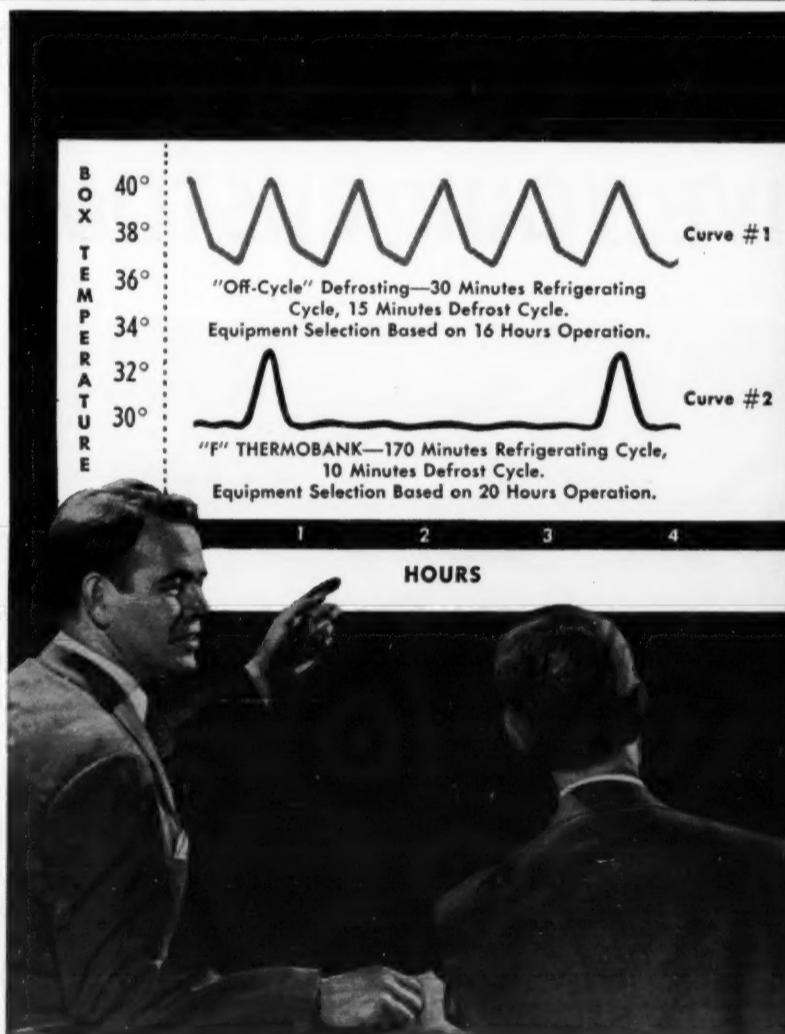
Hotel Exposition Space Sold Out for Nov. Show

NEW YORK CITY—Pierre Bultinck, chairman of the 42nd edition of the National Hotel Exposition and general manager of the St. Regis hotel, has recently announced that the forthcoming exposition which will be held here Nov. 11-15 in the New York City Coliseum has already been completely sold

out for its exhibit space. This year, the exposition will occupy three complete floors in the Coliseum, and will feature the products offered by 583 exhibitors.

This is 23 more exhibitors than participated in the record breaking 1956 exposition, it was explained.

FRESH FOOD INDUSTRY ACCLAIMS NEW KRAMER "F" THERMOBANK



KRAMER UNFOLDS A NEW CONCEPT OF REFRIGERATION APPLICATION FOR FRESH FOOD

To obtain the fullest advantage in the storage of most fresh food, a constant temperature of 30° or 32° must be maintained. Since every defrost cycle results in fluctuations in temperature and humidity, to maintain the best storage conditions the number of defrost periods and the length of each defrost must be reduced to an absolute minimum.

The new "F" THERMOBANK has the fewest possible defrost periods and is the only system that will go into a defrost when it is really needed and not before; this is most essential to prevent unnecessary defrost which results in wide temperature and humidity fluctuations in the storage room. (See Curves)

The "F" THERMOBANK is completely defrosted in the shortest possible duration (10 minutes). No other defrost system, regardless of type, can approach this fast defrost.

but the rapidity of defrost is indispensable to hold the ideal conditions of 30° or 32°.

Because the "F" THERMOBANK guarantees the fewest and most rapid defrosts, equipment is selected for 20 hours operation. This permits the selection of a smaller compressor and a smaller THERMOBANK system resulting in lower first cost as well as economical operation. When the added benefits of "F" THERMOBANK features such as less waste, longer shelf-life, less dehydration, less mold and bacterial infection, and maintenance of "freshness" during storage, are included in the cost estimate, the "F" THERMOBANK is incomparable in value.

Selection and application of the "F" THERMOBANK are simple. Rapid selection tables covering a wide range of cooler sizes for 30° applications are available.

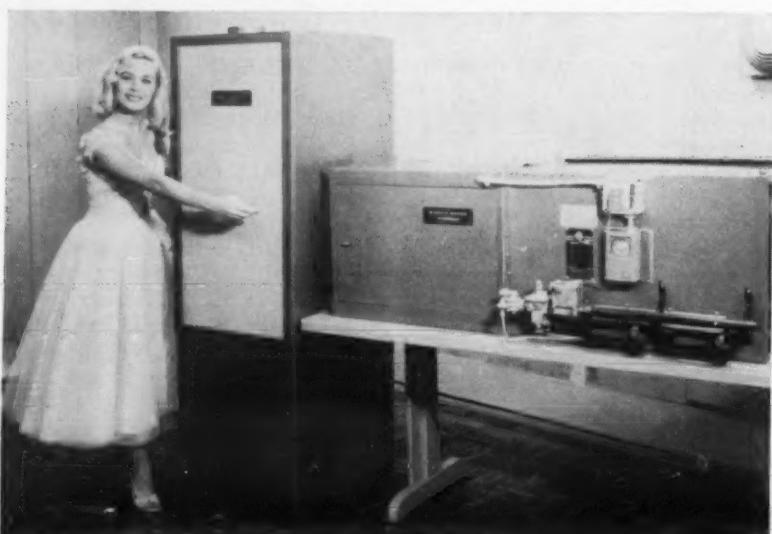
WRITE FOR BULLETIN TV-380

KRAMER TRENTON CO. • Trenton 5, N.J.

43 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

For more information about products advertised on this page use Information Center, page 20.

Counterflow, Horizontal Furnaces



Worthington counterflow furnace at left and the horizontal furnace at right are products of the corporation's Alhambra, Calif. plant. Exclusive feature of the counterflow and highboy models include a floating heat exchanger that expands without stress and strain resulting in a quiet unit. Another feature of both models is a drawer type blower section that glides in and out, making minor adjustments easy. Both units are available with a high static blower designed for installations where air conditioning is going to be tied in with the heating unit.

Unit Heater Output Expanded by Carrier

SYRACUSE, N. Y.—Expansion of unit heater production to meet rising sales demand was revealed by Carrier Corp.

A new production line already is in operation at the Syracuse plant of the company. The complete facilities include a press shop, metal-cleaning and rustproofing equipment, paint-spray booths, and ovens to provide a baked enamel finish on all unit heater lines.

M. Everett Barnard, manager of the unit heater department, said the new manufacturing arrangement will assure a steady flow of products to wholesalers to meet anticipated heavy fall purchases. He reported that Carrier's unit heater sales through early 1957 were 27% ahead of last year with an even greater gain expected as the heating season approaches.

He said that additional models would be announced soon.

DEW Line

100 Nelson Heaters Ordered for Secret Radar Stations

LOUISVILLE, Ky.—More than 100 Herman Nelson commercial-type portable space heaters have been purchased for use on the super-secret DEW line, according to American Air Filter Co., Inc.

Robert C. Koehring, manager of Herman Nelson Portable Products, revealed that the contractor for the construction of the network of radar stations across the frozen Arctic wastes, has ordered "Utility" model space heaters to provide heat for operational buildings, living quarters, warehouses, and for pre-heating mobile equipment, electronic equipment, and aircraft.

With this new contract, the number of Herman Nelson portable heaters being used on the DEW Line will be well over 200.

The DEW (Distant-Early Warning) Line, stretching from coast to coast across the northernmost part of this hemisphere, is designed to give this country several hours warning in the event of an enemy attack.

Illinois Iron & Bolt Purchases Burdett Gas Burner Division

CARPENTERSVILLE, Ill.—Purchase of the Burdett "Radi-Heat" Gas Burner Div. of Burdett Mfg. Co., Chicago, has been announced by Illinois Iron & Bolt Co., which for the past three years has acted as exclusive distributor for this gas burner.

All the tools, dies, equipment, and inventory for the burner have been moved to the Carpentersville plant of Illinois Iron & Bolt, 40 miles northwest of Chicago.

Increased production of the various burner models will be carried on there, with a greatly expanded marketing program covering both the liquid petroleum and natural gas markets of the nation, the company said.

Point-of-Sale Displays



CALLED the "Change-O-Matic," this point-of-sale display was designed and produced by the National-U. S. Radiator Corp. for its dealers and wholesalers. The flexibility of its construction permits quick conversion from one product display to another. The unit being merchandised here is the Sunray IV heating packet. It is being described to a sales group by F. S. Hudson, general sales manager.

Honeywell's answer to residential

GIVE YOUR CUSTOMER PRECISELY



In addition to heat anticipation, Honeywell's new T87 Thermostat has a proved universal mercury switch. It provides cooling anticipation where the control system current is zero to 1.5

amps. Now one model covers the whole range. T87 installation is easy, too. Honeywell Sub-Base serves as mounting plate. Being open, it is easily wired. Thermostat simply screws on.

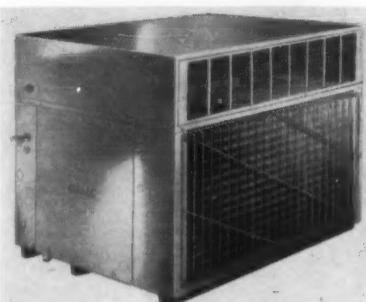
Lennox Remote Air-Cooled Condensing Unit Designed for 4-Ton Installations

MARSHALLTOWN, Iowa — Lennox Industries, Inc. here has developed a new air-cooled remote condensing unit designed specifically for jobs requiring 4 tons of cooling.

With 95° F. air over the condenser, Lennox claims B.t.u.h. capacities of 48,000 or 41,700 depending on what size evaporator is used. A serviceable compressor has been created especially for this 4-ton unit, the firm said.

Lennox offers low-side evaporators in both blowerless additive and blower-powered deluxe units for up, down, and horizontal air flow, it was pointed out.

An outstanding feature claimed for this HSA3-400 high side is its air handling arrangement. When a special Lennox discharge hood is added, con-



NEW LENNOX air-cooled remote condensing unit designed specifically for use on jobs requiring four tons of cooling.

denser air is discharged on the same side of the unit as the air intake. Discharged air is deflected upward so as not to recirculate through the condenser coil. This single side intake-discharge arrangement, the company explained, permits flexibili-

ty of installation. The unit can be built into a building, such as a garage, with only one side exposed to the outdoors. Refrigerant sufficient for the average installation is included, as are pre-wired control panels (one for the high side, the other for the low side) and thermostat.

The acoustically lined discharge hood is said to do a good job of muffling sound. The unit operates well without the hood, too, Lennox said. In such case, air discharge is upward from the top of the cabinet.

Store To Rent Conditioners

ALBANY, N. Y.—The Alberine appliance store here is offering to rent air conditioners to persons in the Albany area. The firm installs and services the units for only the rental fee. If the customer decides to buy the air conditioner, the rental fee is applied toward the purchase price.

Airtemp, Ad Agency 'Pow-Wow' on 1958 Merchandising Plans

DAYTON—Officials of Grant Advertising and of Airtemp Div., Chrysler Corp., "pow-wow'd" in Dayton recently. The major agency-client conference was held to discuss ideas and plans for the Airtemp 1958 merchandising program.

Conference principals included Howard Jones, Grant executive vice president; Sydney Anderson, Jr., manager-Airtemp commercial and residential air conditioning sales; V. P. Black, Grant vice president and account executive, Dayton office; Maurice Dunn, Grant account executive, Chicago office; Robert Van Heusen, Grant Copy Dept.; Wallace Capel, Grant copy group head; William Denton and J. A. Clarke, Airtemp merchandising staff.



If you think home air conditioning systems must be big, bulky, and unattractive to cool a home, look here. The biggest cabinet above is an average automatic washer. The SMALLEST is an Acme "Flow-Pac" water chiller for home air conditioning. Only 18 by 24 in., it is said to handle the cooling requirements for most homes. It's attractive too, even fits well into recreation rooms. And its non-ferrous water circuit, complete hermetic refrigeration system are designed to provide easy, economical operation. Capacities range from 1 1/4 through 5 hp.

air conditioning control problems is simple, just

WHAT HE WANTS—AND NEEDS!

Now, combine one Honeywell Thermostat with your choice of 12 Honeywell Sub-Bases—to offer any sequence of operations to meet any heating-cooling need

HERE'S THE most flexible control combination ever conceived for heating-cooling. And the most satisfactory. For the world's most popular thermostat—the Honeywell Round—provides the close sensitive control which means better dehumidification. Its operating differential of only 1° also eliminates the frequent discomfort of those wide temperature swings.

By stocking just one Honeywell Thermostat and combining it with any of 12 Honeywell Sub-Bases—you give customers the exact

switch and thermostat combination they want to best meet their needs.

Then to complete the system, you choose from specially designed pre-wired Honeywell Control Panels—customized to meet your needs. And that's it—all in one easy-to-stock, easy-to-install system.

Get detailed information on Honeywell's complete line of air conditioning controls. Call your local Honeywell office, or write directly to Honeywell, Dept. AN-7-105, Minneapolis 8, Minnesota.

You offer Honeywell's famous "custom control" air conditioning with this wide range of switching actions.

For use with the famous Honeywell Round T-87 Thermostat



Q405A—Heat-Off-Cool Fan On-Auto



Q405B—Heat-Cool Fan On-Auto



Q405C—Heat-Off-Cool



Q405D—Heat-Cool



Q405E—Cool-Auto-Off Fan On-Auto



Q405F—Heat-Off-Cool Fan On-Auto



Q405G—Heat-Off-Cool



Q405H—Cool-Auto-Off (extra pole wired for continuous fan operation)



Q405L—Cool-Off-Fan

Note: Models of Q405A, C & E are available for providing remote reset of cooling system.

HONEYWELL



Air Conditioning Controls

For more information about products advertised on this page use Information Center, page 20.

Westinghouse Will Expand Verona Plant

VERONA, Va.—Announcement was made of plans to enlarge Westinghouse Electric Corp.'s air conditioning division plant here.

Burr Tupper, plant manufacturing manager, said the addition would cover more than 87,000 sq. ft., and will be constructed as an extension of the present building.

"No more employees will be required," Tupper continued, "since most of the new space is to be used to enlarge the area available for receiving and warehousing departments.

"We plan to consolidate at the Verona plant all of the raw materials stored in several area locations as well as finished stock now in warehouses throughout the country," Tupper said.

Kreuttner Tours West On Behalf of Dual-Duct Air Mixing Units

NEW YORK CITY—Joseph W. Kreuttner, vice president of Buensod-Stacey, Inc. has begun a swing through the western two-thirds of the nation on behalf of dual-duct air mixing units manufactured by the company.

He will visit at least eight cities in the west.

Kreuttner said the purpose of the trip was to consult with architects and engineers at several places about projects being planned or begun, and meet with Buensod-Stacey representatives in other cities. His itinerary includes Portland, Ore.; Spokane, Wash.; San Francisco; Los Angeles; Tucson, Ariz.; Albuquerque, N. M.; Kansas City, Mo.; and Waterloo, Iowa.

Virginia Power Reports 114 Heat Pumps on Lines

RICHMOND, Va.—Already, says Virginia Electric and Power Co., there are 114 heat pump installations in the area served by the utility, "and more are going in all the time."

Many are multiple-unit installations, the company further stated.

Portable Electric Tool Drives, Removes Screws



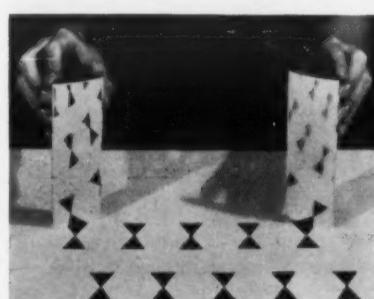
new portable electric all-angle screw driver.

This new tool will drive or remove wood screws, self-tapping screws, lag screws, and machine screws and nuts. It is offered with a positive or adjustable clutch. Positive clutch provides a free spindle for engaging bit with screw. Operating pressure closes the clutch and continues to drive until the resistance is greater than the hand pressure.

KEY NO. G-741

SIOUX CITY, Iowa—Albertson & Co., Inc. recently announced a

Bright Finish on Anodized Extruded Aluminum



KEY NO. G-742

PITTSBURGH—New brightness from anodized aluminum extruded shapes is available to manufacturers in the automotive, architectural, and appliance fields, it was recently announced by Aluminum Co. of America.

A heat-treatable aluminum alloy, designated Alloy X6463, has been developed by Alcoa.

This new alloy, when anodized, offers a bright finish.



Quiet Beyond Belief!



d-h AIR CONDITIONING



Says: Jack Tullus, President-Manager of the eye-filling new Shreveporter Highway Hotel...
■ "Quite a saving in initial and operating costs!"
■ "Periodic filter change our only maintenance."
Drayer-Hanson can cite similar case histories, world-wide: big jobs or small; new or old construction; residential, commercial, industrial...

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CABLE: FORTRADE

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Meter Measures Heat In Thermal Units

KEY NO. G-743

NEW YORK CITY—A completely mechanical instrument that measures heat in thermal units and liquid flow in gallons has been announced by Air Conditioning Equipment Corp.

Known as the "Pollux" B.t.u. integrating meter, it can measure the heat absorbed by a liquid and the heat removed from the liquid. It can also measure the heating and cooling consumed in individual areas, it was stated.

The meter consists of a liquid meter and an integrator. The liquid meter measures the flow of liquid. The integrator combines the difference between the supply and return liquid temperatures and the flow through the liquid meter giving a resultant product in B.t.u. automatically totaled on the counter. The total number of gallons is recorded on a second counter. Directly above these two counters is a pointer indicating the instantaneous temperature difference of the supply and return liquid in degrees F.



Offers Oil-Fired Boiler-Burner

KEY NO. G-744

BALTIMORE—General Automatic Products Corp. recently announced introduction of new series "LO" oil-fired boiler-burner unit.

The LO is 36 in. high, can be installed almost anywhere. For homes requiring not more than 750 sq. ft. of hot water radiation, the LO supplies all the heat needed—efficiently and economically, the firm claims.

The all-welded, heavy-steel construction assures long life—there are no joints to crack or leak, it was stated.

PRESSTITE Insulation Adhesives

- quick, permanent adhesion
- long-lasting high bond
- excellent resistance to temperature extremes
- brush, spray or flow

See your wholesaler or WRITE

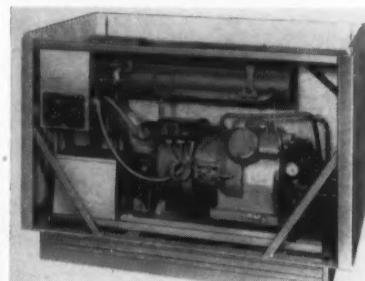
PRESSTITE-KEYSTONE
Engineering Products
COMPANY

3774 Chouteau Ave. St. Louis, Mo.

Package Chiller Available In 3, 5-Hp. Sizes

KEY NO. G-745

HARRISON, N. J.—Worthington Corp. recently introduced a new packaged water chiller available in 3 and 5-hp. sizes that requires no field refrigerant piping and is designed to meet home, commercial, and industrial needs.



Compact unit consists of water chiller, compressor, water-cooled condenser, and controls—all factory assembled into an insulated, bonderized steel cabinet requiring only 8.3 ft. of floor space, the company said.



MASSIVE DEPTH FILTERING! FILTER-DRIERS

Super-Flo's massive fiberglass depth filter and a molded drying element increase foreign matter, moisture and acid removal. Write for low prices.

AVAILABLE TO THE TRADE THRU WHOLESALERS EVERYWHERE

REMCO INC.
ZELIENOPLE, PA.

'Botteleit' Water Cooler Produced

KEY NO. G-746

COLUMBUS, Ohio—New "Oasis Botteleit" water cooler produced by Ebcō Mfg. Co. here is claimed to fit anywhere the entire family can enjoy cool water.

It plugs into any a.c. outlet, needs no plumbing or drains. Botteleit can be fitted on two accessory rubber wheels for portability, is engineered for trouble-free, noiseless operation.

TEMKON

Air Conditioning and Refrigeration

TEMPERATURE LIMITED

Burlington Road, London, SW6. Cables: Temtur, London

Largest Producer of Air Conditioning Units outside the U.S.A.

Information Center

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised

(list name, page, and issue date)

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What's New or Current Literature Available

Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.

Name Title
(Please Print)

Company

Street

City Zone State

Type of Business

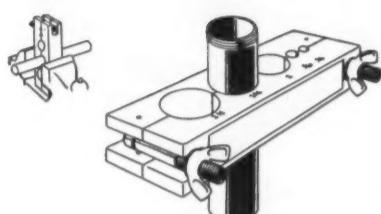
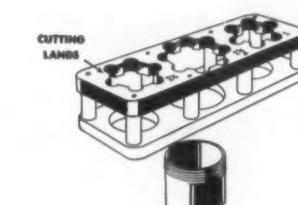
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AIR CONDITIONING & REFRIGERATION NEWS

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DETROIT 26, MICHIGAN



Tool Threads Three Brass Tubing Sizes

KEY NO. G-747

NEW YORK CITY—A tool made specially to thread three sizes of brass tubing, and a holder that insures a proper grip on the tubing being threaded, are available from the J. A. Sexauer Mfg. Co. here.

The 3-in-1 tube threading tool, as it is called, has three dies that cut a 27 thread per inch on 1, 1½, and 1¾-in. brass tubing. The tool's 1 and 1¼-in. dies have six cutting lands; the 1½-in. die has eight cutting lands.

The companion unit, 5-in-1 tubing holder, grips ¼, ¾, 1, 1½, and 1¾-in. tubing in a rigid position for either threading, cutting, or flaring. It consists of two parts which are locked together by wing nuts and, when clamped in the jaws of a vise, holds the tubing firmly without damaging or distorting it.

3-Piece Clamp Offers Positive Holding

KEY NO. G-748

DOVER, Ohio—A rustproof clamp is being made by Commercial Machine & Welding Co. here.

By wrapping the clamp around the valve bulb and suction line, putting the bolt through the hole and through the slot, starting the nut on the bolt, pulling the nearest two ears of the nut tight and turning the bolt into the nut, unit is claimed to offer positive holding that eliminates fumbling around.

Compact, this three-piece clamp is adjustable to various sizes of suction lines and valve bulbs, eliminates use of two bolts, two nuts, and two straps.

Produces Improved Flexible Conduit

KEY NO. G-749

BROOKLYN—Columbia Cable & Electric Corp. recently announced production of a new and improved type of liquid-tight flexible electrical conduit, "Flex-Seal" type XL.

Unit consists of a flexible galvanized steel conduit with a copper bonding strip wound spirally in the spaces between the convolutions and is covered over-all with an extruded vinyl plastic sheath. Flex-Seal is also available in type EX, without the bonding strip.

The tough plastic jacket has been specifically designed to withstand the deterioration of coolants, moisture, fats, corrosive fumes, chemicals, salt air, etc.

Flex-Seal, manufactured in trade sizes ranging from ½ to 2 in., may be installed in the same manner as ordinary conduit.

Close-Coupled Pump Available In 21 Sizes

KEY NO. G-7410

AURORA, Ill.—A new packaged "Centri-Pac" close-coupled pump, available in 21 sizes ½ to 5 hp., has been developed here by Aurora Pump Div., New York Brake Co., the manufacturer announced.

Suited for use with various air conditioning units, evaporative coolers, and milk coolers, the pumps have capacities to 150 g.p.m. and heads to 140 ft., it was explained.

Features include compactness, company said.



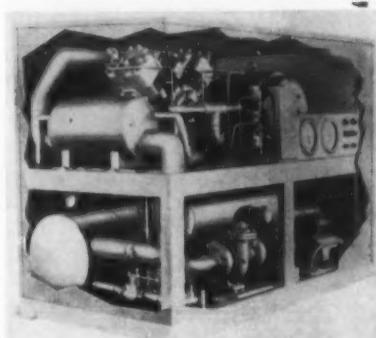
3,500 single and three-phase operation, low NPSH characteristics, balanced impellers, mechanical seals of stainless steel parts with carbon stationary seal ring, bronze-fitted construction, and stainless steel motor shaft, suction and discharge threaded, the pump are included, sized to customers' specifications. All inside

60, 75-Ton Packaged Liquid Coolers Added

KEY NO. G-7411

MORTON GROVE, Ill.—Two new packaged liquid coolers have been added to the Bell & Gossett Co. line. These are 60 and 75-ton units.

New units are true packaged units, needing only outside wiring and outside plumbing. All electrical controls are furnished and wiring is complete with a fully protected interlocking control system. Chiller pump and the tower pump are included, sized to customers' specifications. All inside



plumbing is finished and ready for outside connection.

Molded styrene has been used to insulate the chiller (evaporator).

Versatile New Ranco O16 Controls Simplify Commercial Installations

New Pressure and Temperature Controls

Feature Higher Electrical Ratings, Range and Differential Adjustability

Your control installations on heavy-duty refrigeration and air conditioning equipment are strictly routine with Ranco's new series 016 Controls.

The eleven versatile Ranco models in the new 016 line—including low pressure, high pressure and temperature types—are built to accommodate the higher electrical ratings of some commercial equipment. All models feature single pole, double throw switches designed to open or close on rise of temperature or pressure. And all can be provided with manual reset feature.

Pressure control ranges vary between 5 and 360 psi with adjustable differentials from 10 to 100 psi. Temperature models feature -30° to 105° ranges, adjustable differentials from 2½° to 27°, or fixed differentials of 2° to 4°.

Electrical ratings are approved and listed by UL and CSA: 115 and 230 a.c. Maximum Motor Amp Ratings: Full Load—15.5; Locked Rotor—60.

For full details on the efficient new 016 Ranco Control to simplify your commercial installation, contact your Ranco Wholesaler today.

Ranco Inc.

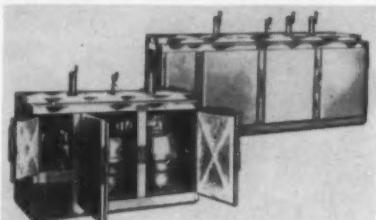
COLUMBUS 1, OHIO



Ranco Low Pressure Commercial Refrigeration Control, 016-107

- Contacts open or close on rise of pressure.
- Single pole, double throw switch.
- For SO₂, CH₂C₁, F-12, F-22 and Carrene 7 refrigerants.
- 5 to 95 psi range.
- 10 to 40 psi adjustable differential.
- 10" vac. lowest operating point.
- 115 and 230 V. a.c., 15.5 amps full load, 60 amps locked rotor.

WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS



Redesigns Draft Beer Coolers

KEY NO. G-7412
PUNXSUTAWNEY, Pa. — Its complete line of "Beverage-Air" draft beer cooler line was recently redesigned by Punxsutawney Co. here.

With a balanced cooling system, the coolers are claimed to provide trouble-free refrigeration from keg to faucet valve.

Utility compartments added to the Beverage-Air coolers hold up to four cases of bottles or can be used for glasses and mix, it was explained. The combination of refrigerated bottle and draft beer capacity up to five kegs in one cabinet in models 48 or 96 in. long has remote or self-contained cabinets with baked enamel or stainless steel exterior. Flush-mounted door hinges and latches are said to be catch-free and each unit has stainless steel top.



- ◆ Extra-large storage
- ◆ Safety from freeze-up
- ◆ Fast hourly recovery
- ◆ 20-year life construction

Capacities: 5 to 500 g.p.h.
Storage: 2 to 240 gals.
Water coolers for all uses
factory-packaged with your
condensing unit. Write for
literature.

FILTRINE MFG. COMPANY
216 W. PROSPECT ST. • WALDICK, N.J.

Adds Dual Switch Pressure Control

KEY NO. G-7413

WATERTOWN, Mass. — United Electric Controls Co. here recently added type J17A dual switch pressure control as one of its standard pressure-vacuum controls. This unit provides two completely separate switch actions, permitting control of two independent circuits and extreme flexibility of switch arrangement, the company pointed out.

An uncalibrated unit, J17A permits pressure settings to be made individually on each switch by adjustment screws that are accessible after cover is removed. Nine models are offered in a variety of adjustable ranges between 0 and 180 p.s.i. limits, and maximum pressure to 180 p.s.i., the firm said.



On-off switch differentials are preset for values of 1-in. Hg to 1 p.s.i., dependent upon the model.

Switches may be set together to simulate double-pole circuitry or set apart to obtain independent operation, it was noted. Wider differential between switches is available when specified.

Produces All-Aluminum Auto Unit Condenser



KEY NO. G-7414

RACINE, Wis. — Production of the first all-aluminum, metallurgi-

cally-bonded condenser for automotive air conditioners was recently inaugurated at Modine Mfg. Co.

Weight of the condenser has been held to less than 7 lbs. through use of aluminum tubing and fins, it was noted. To conserve space in front of the automotive radiator where the condenser normally is installed, the over-all depth of the coil has been held to approximately an inch.

The new "serpentine" design of the condenser provides for minimum resistance to airflow, combined with high condensing capacity, the firm said. Simplified connections are designed for easy installation in the field or at the factory.

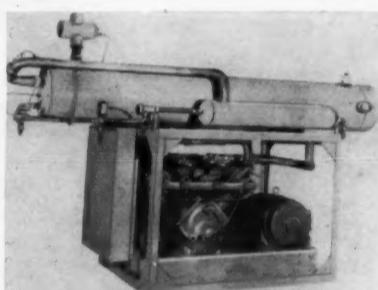
Water Chiller Line Covers 7½, 75-Hp. Range

KEY NO. G-7415

LOS ANGELES — Drayer-Hanson recently offered a new line of packaged water chillers, 7½ hp. through 75 hp.

The equipment, designated "D-H CWG," is engineered to convert either hot water or steam systems in existing structures to summer air conditioning, the company indicated.

Key advantage is cost-saving factor of utilizing existing piping to pipe through for the air conditioning cycle. Units are factory assembled, factory wired, and factory tested. Minimum field installation is stressed: only chilled water connections, condenser water connections, and simple electrical



connections required to make units operative, it was noted.

Equipment is factory shipped with insulated heat exchanger and chiller, across-the-line starters, and insulated suction lines included.

Designs Service Section To Speed Meals

KEY NO. G-7417

BROOKLYN — A new, high-efficiency waitress service section designed to speed customer service at peak meal periods is being produced by the Dunhill Food Equipment Corp., the manufacturer announced.

The new unit, the manufacturer claims, will speed food service 25%. Dunhill's waitress service section which measures 72 in. high, 60 in. long, and 24 in. deep, is constructed of welded steel throughout. Points of wear are reinforced for extra rigidity. All visible areas are surfaced in easy-to-clean stainless steel, it was explained.

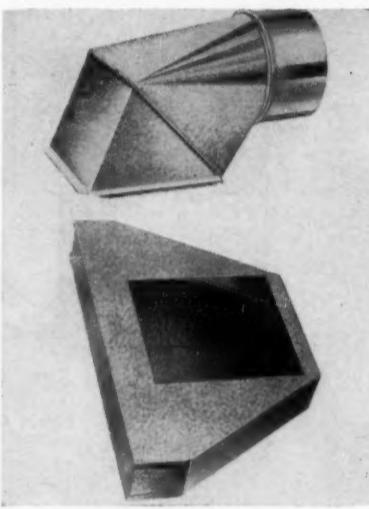
The unit is equipped with an "easy-serve" water station complete with push-type water arm and non-splash under grid. Two spacious bread drawers and a four-hole cutlery bin are included,



it was explained by the manufacturer.

The entire unit is available ice cooled or mechanically cooled with either a self-contained, hermetically sealed or remote refrigerator unit, it was pointed out.

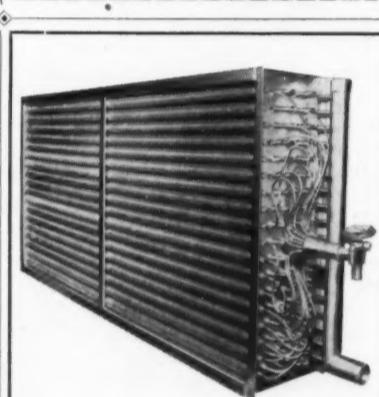
Pre-Formed Round Pipe Offered In 2 Basic Units



KEY NO. G-7418

EAST LONGMEADOW, Mass. — A new type simplified, pre-formed round pipe and fittings for modern perimeter heating is now being manufactured by Duc-Pac, Inc. here.

Designed primarily to eliminate the great number of sizes and shapes now required to do the same job, the Duc-Pac fittings units. These are the universal take-off and the universal box. Available in several different sizes, these units can handle, either singly or in combination, nearly any warm air run in perimeter heating installation, the firm said.



SPECIAL COILS WITH COPPER OR ALUMINUM FINS MADE TO YOUR DIMENSIONS AND SURFACE REQUIREMENTS.

CONDENSERS,
EVAPORATORS, WATER,
STEAM AND NON-FREEZE
STEAM COILS IN ANY
SIZE OR CAPACITY.

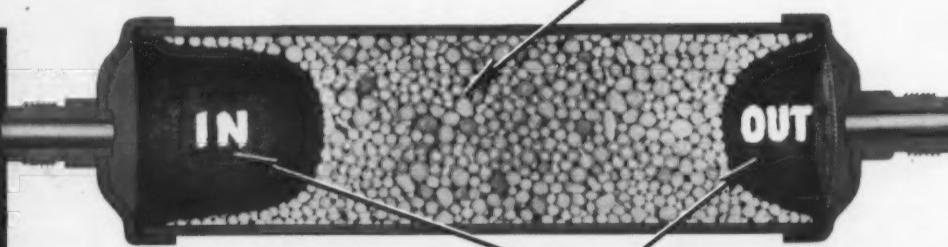
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Only McIntire OFN FILTER-DRIERS do 2 FULL-TIME JOBS!

In many driers, the desiccant must also act as a filter—becomes contaminated by foreign matter—loses drying efficiency. Only DFN Filter-Driers do each job separately—with 100% efficiency in each.



The combination of new, high-capacity Permasorb desiccant and twin filters in DFN Filter-Driers, gives you the ultimate in protection against moisture, foreign matter and acids. You get fast-acting, high-capacity drying under all operating conditions and temperatures—clean, dry refrigerants that keep systems running at peak efficiency for longer periods.

Ask your wholesaler for McIntire DFN Filter-Driers with Permasorb, to get full-time drying and filtering on your next installation. They cost no more than other types.

High-capacity desiccant

Permasorb®
WITH MOLECULAR SIEVE

does the Drying

Many times greater drying capacity than other desiccants and protected by an inlet filter against dirt, sludge, clogging. It does a full-time drying job!

Double FILTERS do the Filtering

Specially-processed, low-micron inlet filter traps and holds all foreign matter within filter and away from desiccant. Outlet filter protects expansion valves and other critical parts.

The McIntire Company • Livingston, New Jersey

Since 1925 — Specialists in Drying and Filtering

For more information about products advertised on this page use Information Center, page 20.

Motors, Motor Protection

Manufacturers, Contractors, Utilities Debate Use of 3-Phase, Single Phase Motors, Motor Protection

MIAMI BEACH, Fla.—There is no general agreement—as yet at least—in the air conditioning and refrigeration industry, and between the industry and electric power companies, as to the best type of motors, and the best type of motor protection, for electrically driven refrigeration compressors.

This came out in the forum on "Electrical Requirements and Problems of Air Conditioning Equipment" held during the ASRE convention here. In these forums, the participants speak freely on any phase of the subject, and there is no mention of any individual's discussion in any report.

Discussions centered on two main points—single-phase vs. 3-phase motors in air conditioning and refrigeration applications; and the matter of proper motor protective devices for the types and sizes of motors used in such applications.

Participants at the forum who spoke for the electric power companies came out strongly for the use of single-phase motors through 5 hp., particularly in residential air conditioning applications.

Original Cost Lower With Single-Phase Motor

Principal argument for the single-phase unit is the more favorable cost in terms of original equipment, customer wiring, and the utility's costs.

Those speaking for the power companies also pointed out the problems that come from "unbalance" in three-phase voltage. An unbalance in the order of 10% can cause an intolerable extra current load on the motor, and certainly the utility must have a responsibility to make certain that this doesn't occur.

However, the power companies seem to feel that manufacturers and cooling contractors aren't tolerant of any imbalance in three-phase voltage whatever. They stated that any attempt to hold three-phase voltage imbalance below a tolerance of 2½% would work nearly impossible hardships on the utility, and requested that manufacturers take this into consideration in the design.

On the other side of this discussion, favoring use of three-phase motors where such current is available, were field engineers, and in particular, installing contractors.

3 Arguments for 3-Phase

They conceded that "generally" the use of single-phase motors would be the order of the day for residential air conditioning systems through 5 hp., but in commercial applications of air conditioning and refrigeration they offered the following arguments for three-phase units:

1. Lower price and greater efficiency.
 2. No running capacitors and other accessories which are necessary on single-phase units.
 3. Withstand voltage fluctuations better.
- "Single-phase units give us

much more trouble, mainly in pany spokesman said that it is capacitors, relays, and motor advisable to protect each phase burnouts," stated one contractor.

"In most cases, an electrician may do the wiring on an installation, but once it's in, the air conditioning and refrigeration serviceman gets all the blame, has all the responsibility. That's why we're so fussy about the kind of a motor that is used."

Getting into the subject of motor protection, a power com-

line could be twice this value condition still exists, it will shut off for another 5 minutes.

Automatic reset in motor protection devices is a vital element in food store refrigeration systems, it was pointed out.

The point was made that over-load protection by a heat actuated thermostat alone won't handle a locked rotor situation, which often results in a motor burnout. Reason for this, it was advised use of fusetrons rated at 125% of nameplate current.

It was stated that a big need is for an automatic reset magnetic across-the-line starter. A primary feature should be a time lag actuated by a time delay device, so that the motor shuts off for about 5 minutes, protective device, and a heat and if it goes back on and the sensitive protective device.



4 NEW GENERAL ELECTRIC CAPACITORS

save space, eliminate extra mounting brackets, and cut costly connections in central air conditioners

Now General Electric offers four new rectangular capacitors designed especially for central air conditioners ranging in size from 1½ to 5 tons. These higher rated capacitors mean that for many applications it is now possible to use a single unit instead of two or three lower-rated ones. Not only does this allow a considerable space saving, but it also reduces the number of mounting brackets and connections.

Higher capacitor ratings have been achieved with a minimum increase in case height and no increase in base dimensions. The table below gives you typical microfarad ratings for the new rectangular units.

The new rectangular cases, as well as G.E.'s full line of capacitors for air conditioners, feature a new anti-corrosion finish: durable Granite Gray case paint and electro tin-plated brass covers. This combination gives the capacitors more than four times the corrosion resistance of the previously used finish. It is listed by Underwriters' Laboratories, Inc. for all outdoor condensing and central air conditioning applications.

For more information about General Electric capacitors for air conditioners contact your nearest G.E. Apparatus Sales Office, or write for bulletin GEA-5895 "Capacitors for Air Conditioning Equipments," General Electric, Section 448-3, Schenectady, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

Commercial Refrigeration, Conditioning Distributor Sales Soar 15% In May

WASHINGTON, D. C.—Air conditioning and commercial refrigeration distributor sales in May soared 15% over the previous month and were 9% higher than May a year ago, the Bureau of the Census monthly wholesale report indicates.

Distributor sales for the first five months of this year held even with the like period in 1956. End-of-May inventories were up 3% over April and 4% higher than May of last year.

Plumbing and heating equip-

ment supplies distributors sold 8% more goods in May than the preceding month, but sales were off 4% from the same month last year. Sales in the first five months of this year totaled 2% less than the like period a year ago.

Inventories of plumbing and heating equipment and supplies held even with April in May, but were 3% lower than May, 1956.

Electrical appliance, television, radio set, and electronic parts distributor sales climbed

7% in May over the previous month and leaped 12% over May, 1956. Total sales for the first five months of this year were 4% above those of the same period a year ago. May inventories slipped 4% from those of April and were 6% higher than those of the same 1956 month.

Converts Warehouse

PHOENIX, Ariz.—Crystal Ice will convert an ice storage building at 2003 W. McDowell into a subzero warehouse for frozen foods, W. F. Ashbury, general manager of Crystal Ice & Cold Storage division of City Products, announced.

Market Doubles Size To Add More Frozen Food, Meat Items In Keeping with Co's Policy

BIRMINGHAM, Ala.—Stating "we need the space for wider aisles, more frozen food, and meat merchandise," Matt C. Richards, store manager of Hill's in the exclusive Mountain Brook area, announced that the supermarket is being enlarged to double its former size.

The move is in keeping with Hill's policy of closing smaller supermarkets and enlarging and building bigger ones. The enlargement will add 4,500 sq. ft. to the store.

Expect 500,000 Yugos To See First Typical U.S. Supermarket, Frozen Cuts

WASHINGTON, D. C.—The first American supermarket ever to be shown in a Communist country will be seen by more than half-a-million visitors at the International Fair at Zagreb, Yugoslavia, Sept. 7 to 22, the Commerce Dept. announced.

"Supermarket, U.S.A.," a typical American supermarket, will be stocked with typical American food products, including frozen foods and packaged fresh and frozen meats.

The National Association of Food Chains is developing the exhibit, which will occupy 10,000 sq. ft. of space.

The food committee responsible for the huge display is headed by Joseph Seitz, president of Colonial Stores, Inc., Atlanta, Ga., chairman.

An American supermarket, shown in Rome last summer by the NAFC, met with overwhelming success, the Commerce Dept. said.

Ohio Store Expansion Emphasizes Many More Refrigeration Units

CHILLICOTHE, Ohio—Refrigeration items were uppermost among the new fixtures installed when a local Kroger supermarket expanded over two residential lots at an increase of 5,700 sq. ft.

There are 36 ft. of new four-shelf refrigerated dairy cases, 80 ft. of self-service meat cases, and 23 ft. of frozen fish and poultry cases, a new department for the store. There are also 66 ft. of refrigerated produce cases, 16 ft. of non-refrigerated produce cases, 24 ft. of ice cream cases, and 92 ft. of frozen food cases. The frozen food section was greatly expanded.

Entire front of the store was rebuilt in the new expansion move.

117 To Exhibit at Vendor Group Chicago Show Oct. 13

CHICAGO—A total of 117 exhibitors have already reserved space for "Operation Automation," the 1957 National Automatic Merchandising Association convention-exhibit to be held at the Philadelphia Convention Hall Oct. 13-16, according to Exhibit Sales Chairman Henry R. Davidson, Davidson Bros., Los Angeles.

MARSH Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
PRESSURE GAUGES and Dial Thermometers for all services.
MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.
MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D, Skokie, Ill.

TYLER
THE ADVANCED DESIGN

PIONEER

has held the fort for you on
every major improvement since World War II



You have to fight when you open up new territory! MODERN EXAMPLE:

When Tyler developed the first line of low, merchandising height, no-glass,

open-front Sales-Cases back in '54, the move was welcomed quickly by alert

store operators—and strongly opposed by other commercial

refrigerator manufacturers. But Tyler held the fort—and

today practically every Tyler competitor is offering an imitation of

this famous and successful Tyler Advanced Design innovation!

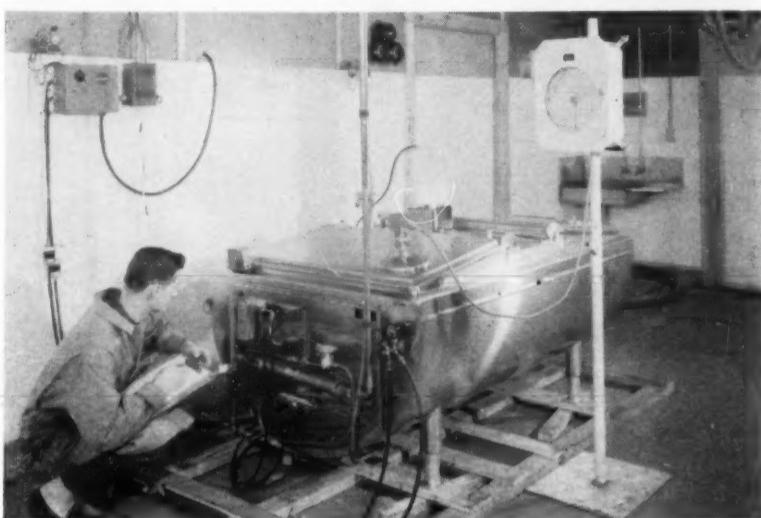
OTHER TYPICAL EXAMPLES

• Tyler pioneered the AUTOMATIC DEFROST, BLOWER-COILED FROZEN FOOD CASE—stood alone for three years. Today all supermarket frozen food cases are refrigerated in this way. • Tyler pioneered the BLOWER-COILED PRODUCE CASE—stood alone for two years—forced another new industry standard. • Tyler pioneered AUTOMOTIVE-TYPE PRODUCTION OF WELDED-STEEL SHELL display cases over twenty years ago. Today competition is still trying to catch up. • Tyler pioneered ROLLING-COLD PACKAGING CONVEYORS, REFRIGERATED DISPLAY TABLES, factory-engineered, MULTIPLE CONDENSING UNIT ASSEMBLIES—held the better-merchandising, better-refrigeration fort until others eventually followed.

30th YEAR
TYLER
PIONEER of important improvements

TYLER REFRIGERATION CORPORATION, Niles, Mich.
Canada: Tyler Refrigerators, 732 Spadina Ave., Toronto, Ont. (Export: Tyler Refrigeration International, C.A., Casa Bera, Urdaneta 119, Caracas, Venezuela)

Tests Milk Tanks In 2 Milk Houses To Avoid 'Unreliable' Field Tests



USING its two milk houses on plant grounds to test milk holding tanks, Solar Permanent Co. believes it eliminates costly, time consuming, unreliable field tests.

TOMAHAWK, Wis. — Two milk houses constructed at the plant of the Solar Permanent Co., division of U. S. Industries, Inc., here were planned and built to duplicate all weather conditions found on the dairy farm all year around. The purpose is to provide the most rigid tests possible on the Solar "MilkMinder."

Using these milk houses, the Solar Permanent Co. is able to produce better milk holding tanks, eliminating time consuming, costly, and unreliable field tests, it was pointed out.

TEMPERATURES SET FROM -10° TO 120°

The Solar Milk houses consist of two separate rooms, one 23 ft. long by 15 ft. wide by 8½ ft. high, which is the larger milk house. The smaller is the same except it is only 9 ft. wide. Fiberglass insulation is used all around to protect the weather conditions that have been made. Temperatures can be controlled from -10° F. to 120°.

"In each chamber a precise set of recording instruments is used to maintain a constant watch on the tanks," it was noted. "These records give Solar engineers all the information they need to keep production at its best. These tests on new designs and on Milk-Minders picked random from the regular production, assure producers and processors of best results in the field.

"Tests are also made on the tank's thermometer, agitators, and compressor motors under these man-made extremes.

WATER MAY BE SUBSTITUTED

"Water may, according to 3-A Standards, be substituted for milk in this case. However, an allowance must be made for the difference in specific heat."

Water is pre-heated to milk warmth and placed in the Milk-Minder and the milk house temperature is pre-set, depending on the test. The tank is required to cool 50% of its rated volume from 90° to 50° within one hour after being filled to half its capacity. Solar's specifications call for the liquid to be cooled to 38° and held there until pickup, regardless of milk house temperatures.

These rigid tests make it possible for the Solar Permanent Co. to engineer and manufacture a laboratory and field proven product.

SMI Asks for 'Realistic Depreciation'--

(Concluded from Page 1) policies on depreciation that would speed up business modernization and expansion, rather than "stifling" it.

Among facts uncovered by the study: although much of the modern supermarket is made up of refrigeration equipment, taxpayers must look to rates set up for hotel and soft drink industries.

Supermarket operators told the IRS that trucks, trailers, tractors, shopping carts, and store equipment are wearing out faster than ever before.

They told the Service that in the old days the checkout counter was nothing but a couple of boards that never wore out. Today, the checkout counter is a highly mechanized piece of equipment that is outdated almost as soon as it is

erected by the introduction of new, faster equipment.

In the old days, supermarket operators told the government, they could dispose of old equipment to smaller stores. But these are disappearing. And today, it often costs more to move automatic equipment to a new owner than the amount raised in salvage.

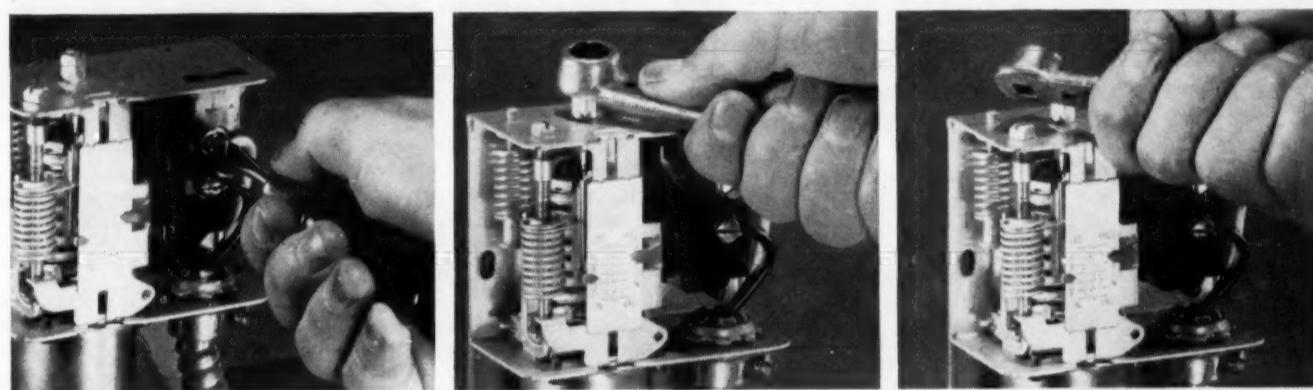
Other points made by the industry are: a building may have a physical life of 50 years, but changes in population and transportation facilities, plus general obsolescence may well reduce its useful life as a supermarket. Much of the equipment now used generally in supermarkets was invented after the bulletin on depreciation (Bulliten F) was published in 1942.

Much of the obsolescence of supermarket equipment is accelerated by consumer demands. Operators pointed out to the IRS that consumers insist on a neat, clean, and appetizing appearance in the modern supermarket. Equipment may function satisfactorily, but if it detracts from the appearance of the store, it must be replaced.

Finally, the institute asserted: "It is incumbent upon the retail food industry to provide food to consumers at the lowest possible cost. This requires speedy replacement of obsolete methods, equipment, and fixtures.

"Slow write-offs delay modernization and stifle expansion. This is not in the public interest, and in addition this reduces the ultimate total taxes collected by the Treasury Department.

"Realistic depreciation rates are particularly important to small business as a means for making possible adequate modernization and expansion."



1. Mount control (bracket furnished), connect capillary, remove control cover and make 2 electrical connections (terminals are completely accessible).
2. Turn the range screw to either raise or lower the cut-in setting as required... differential does not change.
3. Turn differential screw to raise or lower cut-out setting independently of cut-in setting. This widens or narrows the differential.

Easier to Install... Simpler to Adjust!

PENN "270"
**SINGLE-POLE
REFRIGERATION
CONTROL**

PENN

LBS	PRES
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U	40
T	30
Z	20
V	10
IN	20
VAC	

Series 270 is available in a variety of models for every refrigeration job.

Combines simple design with PENN "Snap-flex" contact action

Installation is so simple and fast with the Series 270. And, adjustment is even simpler because of Penn's direct-reading, calibrated scale indicating cut-in and cut-out settings. Time-wasting subtraction or addition is eliminated.

Once installed, the Series 270 will perform accurately and stay-on-the-job longer. One reason is the exclusive, "Snap-flex" contact structure with

"roll-wipe-snap" action on closing and opening. There's no bounce... no closing arc... no welding of contacts.

Try the Penn Series 270... in either single or double pole... on your next job and you'll discover a big difference. Ask your wholesaler for Penn.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

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Dual Systems for Big Supermarket Warehouse Cost More But Insure Against Loss of Food

141-Hp. Job Handles 300,000 Cu. Ft. of Storage Area For Pick-N-Pay

By C. Dale Mericle

MAPLE HEIGHTS, Ohio—In there can be plenty of that. The -10° F. freezer room, for example, which measures 97 by 76 ft. with an 18-ft. ceiling, can hold 55,000 cases of frozen food.

Rapid Pull-Down In 2 Rooms

An added advantage of two separate systems on these rooms is the rapid pull-down possible with both operating, which can occur during periods of heavy service loads.

This approach to the problem of refrigerating Pick-N-Pay's new warehouse was devised by Howard A. Haney, sales engineer with Refrigeration Sales Corp., Carrier distributor in Cleveland.

Actually, this method was the most expensive of several proposals offered to Pick-N-Pay. The latter, however, was convinced that the added cost of dual systems for each storage room, as opposed to one large central system, was more than offset by the insurance against breakdown and food spoilage such an approach provided.

The new warehouse in Maple Heights, a suburb of Cleveland, has an area of 320 by 600 ft., not counting its garage, with a 20-ft. ceiling. A railroad siding in the building can hold 12 freight cars, and the truck dock on the opposite side can accommodate 26 semi-trailers at once.

A large section of the warehouse is, of course, devoted to

dry groceries requiring no refrigeration. In this area a conveyor system is imbedded in the floor, making a long loop through the storage area and passing by the truck loading dock.

Wheeled carts can be attached to, and removed from, the conveyor chain.

Orders for particular stores are filled by placing the groceries on the carts which are then attached to the conveyor. A sign is placed on each cart designating for which truck or station it's intended. When the cart arrives at that station on the truck loading dock, it's pulled off the conveyor and the groceries loaded into the waiting truck.

Entire operation in the warehouse is palletized.

8 Refrigerated Rooms Cover 300,000 Sq. Ft.

The eight refrigerated rooms, representing 300,000 cu. ft., which were constructed by Armstrong Cork Co., serve a variety of purposes and are thus held at three different room temperatures.

One cooler, 27 by 97 by 18 ft. in size, is designed for holding "wet" produce at 35°. Adjoining is another of the same size which also operates at 35° but is intended for dry produce.

These two rooms and five others are protected with 4 in. of block fiberglass insulation. There's 7 in. of fiberglass block, however, around the freezer room, which as mentioned previously is 97 by 76 by 18 ft.

The freezer room, operating at -10° F., is located about midway in the row of refrigerated rooms. To prevent freezing of ground beneath the freezer and consequent heaving of the floor, forced ventilation is provided through sewer crock placed below the room.

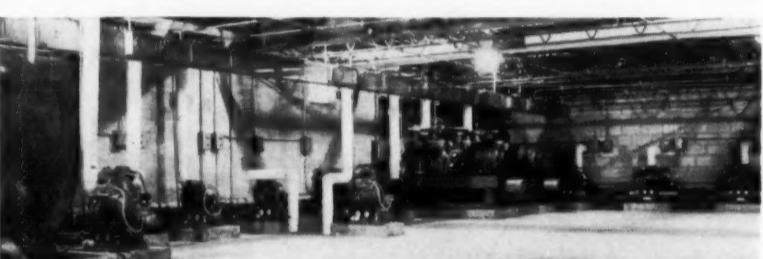
Three other rooms are held at 35° F. These include one for bulk cheese storage measuring 29 by 47 by 12 ft.; one for bulk butter and margarine that is 67 by 47 by 18 ft.; and a 30 by 40 by 12-ft. cooler where packaged cheese, butter, and margarine are held awaiting delivery to the supermarkets.

Two rooms are held at 50°. These are a 16 by 18 by 12-ft. room employed for cleaning the cheese and the adjoining 42 by 30 by 12-ft. room where cheese, butter, and margarine are packaged.

These two rooms are held at the somewhat higher temperature of 50° to permit their occupancy by the workers performing the cleaning and packaging operations. And because



SOME idea of size of new Pick-N-Pay warehouse serving Cleveland can be gained from this view of a corner of huge freezer room, which can hold 55,000 cases of frozen food. There are four large blower coils with ducts to improve air distribution. Freezer is held at -10° F. by two 40-hp. compressors.



SPACIOUS machinery room houses 14 condensing units and 1,000-gal. surge tank (left). Six of the eight cooler rooms are protected by dual systems, each of which can handle whole load so if one system fails, product will still be adequately refrigerated by other system.

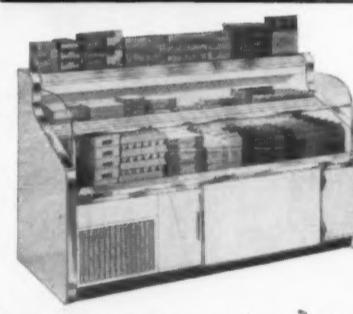
no actual storage of product pose of this ductwork is to protect place in these rooms, the vide even distribution of air dual system of refrigeration em- throughout the rooms and, ployed in the other six rooms particularly, through the prod- was deemed unnecessary here. uct.

Ductwork is connected to the In each storage cooler an 8-in. McQuay blower coils in three of wooden bumper is placed around the storage rooms—the freezer the walls at the floor. While this and both produce coolers. Pur-

(Continued on next page)

**FROM FOOD
TO FLOWERS...**
for dependable refrigeration, sell
Schmidt

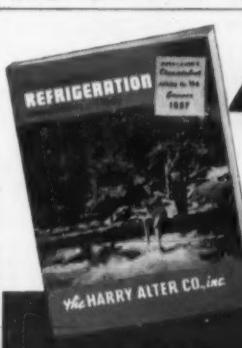
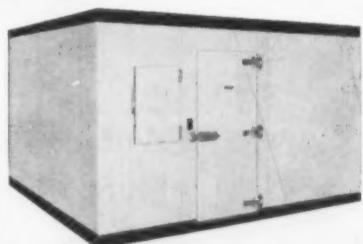
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- many sizes and types



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Designed for ease of operation, this new valve features compact packless diaphragms of beryllium copper and stainless steel, for maximum resistance to wear. Rugged forged brass body has integral mounting flange. Maximum operating pressure, 500 p.s.i. Maximum temperature, 200° F. Connection size inlet 3/8" solder connection—outlet 3/8" male flare. See your Kerotest wholesaler today.

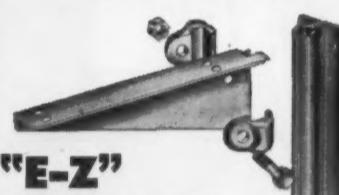
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GIVES PIN-POINT ADJUSTABILITY

- "E-Z" BRACKETS & STANDARDS Provides These Advantages
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NO KEYHOLES OR SLOTS

Brackets slide up and down in Standard groove and lock at any point on Standard.

HANDLES ALL NORMAL DISPLAY LOADS

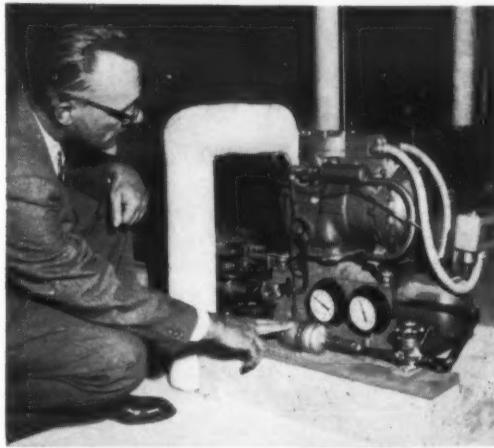
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DEPT. AC-10, NORTH KANSAS CITY, MO.

WHOLESALE ONLY

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TYPICAL machine installation in Pick-N-Pay warehouse gets inspection from Warren Farr, president, Refrigeration Sales Corp., installing contractor. Note permanent gauges.



CONTROL center has warning bell and lights which come on when temperature in any room or condenser water rises too high, as William Brewer (left), chief engineer for Refrigeration Sales Corp., explains to D. Thomas, warehouse manager.



IDEA for dual refrigeration systems was conceived by Howard Haney, sales engineer for Refrigeration Sales, and sold to Pick-N-Pay on basis that added expense would be more than offset by protection against product loss.

Dual Systems Halt Food Loss--

(Continued from preceding page)
helps prevent damage to the walls by lift trucks and pallets, its primary function is to keep the pallets 8 in. from the walls for good air circulation.

Ducts are designed to discharge air toward the side walls where it drops down that 8 in. space between the walls and pallets and then goes through the pallets and aisles back to the coil.

Ducts Discharge Toward Side Walls

Ductwork is also employed in the large 50° cheese and butter packaging room. Here its purpose is not so much one of providing even cooling for the product as to distribute the air throughout the room at low velocity and thus not bother the workers while still maintaining the required 50° temperature.

Condensing Units Placed Above Rooms

The 14 Carrier condensing units (Refrigerant 12 and 22) serving the coolers are located in a spacious machinery area directly over the 12-ft. high rooms. These units range in size from the single 2-hp. machine handling the 50° cheese cleaning room to the two 40-hp. units handling the big freezer.

Other machines include a single 7½-hp. unit on the cheese and butter packaging room, two 7½'s for the "wet" produce

cooler, two 5's for the dry cooler, two 3's for cheese storage, two 7½'s for butter and margarine storage, and two 3's for the cooler where cheese, butter, and margarine are held after packaging.

The dual systems serving six

of the refrigerated rooms are in event one system fails, each no way interconnected. For example, one of the 40-hp. units for the freezer supplies refrigerant to two McQuay blower coils in the freezer while the other 40-hp. machine is separately connected to two other blower coils in the freezer.

Provides Insurance Against Failure

Primary purpose of this dual system is to provide insurance against loss of product in the

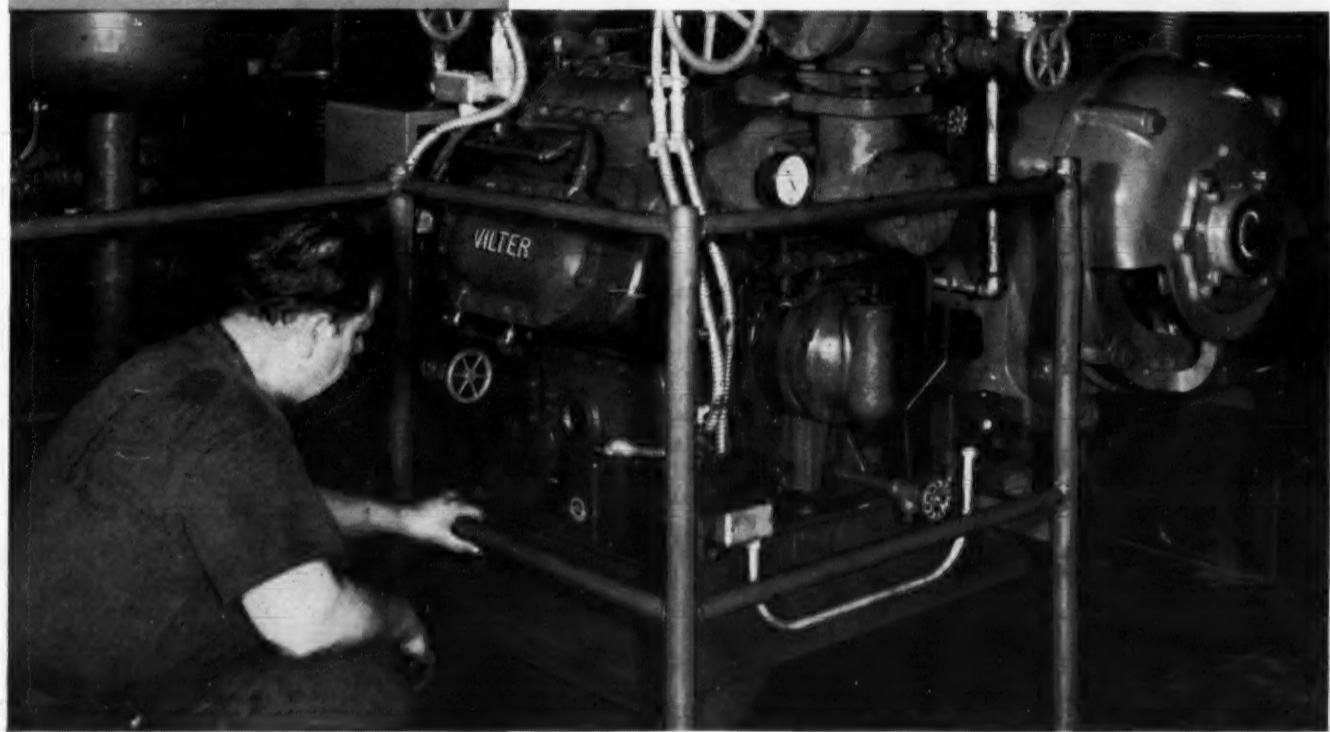
event one system fails, each no way interconnected. For example, one of the 40-hp. units for the freezer supplies refrigerant to two McQuay blower coils in the freezer while the other 40-hp. machine is separately connected to two other blower coils in the freezer.

Rather than have one machine sit idly most of the time strictly as a standby unit, they operate on alternate cycles. In other words, when a room calls for cooling, the first machine will cut in and operate until the

temperature is brought down to the cut-out point. Next time the room requires cooling, the second machine starts up. Thus there is even wear on the machines and, since each operates half the time that would ordinarily be required, machine life

(Concluded on next page)

Get the power you need for smooth, swift compressor operation with



100 HP Century Performance-Rated type SCH Motor drives 4-stage compressor in air conditioning installation at large hotel.



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Century has the motors you need... Performance-Rated to your specific applications! Here, a Century motor smoothly delivers the power for efficient compressor operation... with swift and easy acceleration from rest to full speed. Quiet starting and running characteristics; and where starting current must be limited, they are connectible for part winding starting. Available up to 400 HP.

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Your Customers'
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IDEAL
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1/20 to 400 H.P.



CENTURY ELECTRIC COMPANY

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Dual System Refrigeration--

(Concluded from preceding page) start up first when cooling is required again.

Control for insuring this alternate operation of the dual systems is an ingeniously simple arrangement that was devised by Hugo Smith a few years ago on another job for Refrigeration Sales Corp.

Each of the two machines is simply operated by its own pressure control, both controls being set for the same cut-in and cut-out points. Essentially, what happens is this:

How Two Systems Operate

While System A is operating the suction pressure in System B will normally be below the cut-in point but will probably never drop quite to the cut-out point of System A. Thus, when System A is satisfied and stops, the suction pressure in System B will rise faster than in A and therefore reach the cut-in point first. The reverse will hold true during this cycle, so after System B is satisfied, System A will

start up first when cooling is required again.

Incidentally, as it does wherever possible on an installation of this magnitude, Refrigeration Sales Corp. has provided on each machine permanent suction and head pressure gauges along with sight glass, drier, and valved charging connection.

Thermostatic-Controlled Water Circulation

A 75-ton Marley cooling tower is located on the roof, but there's a 1,000-gal. sump tank in the machinery room directly below. A thermostatically operated control system was engineered for water circulation and supplied by Barber-Colman.

When the water circulating pump is operating, as it does when any condensing unit is running, a thermostat in the sump tank controls a three-way water valve. This thermostat is set to provide 60° to 75° water year around, which is used not only for condensing purposes but also for defrosting the four blower coils in the freezer. (De-

frosting is programmed by Paragon timer clocks.)

If water temperature in the sump tank is below the thermostat setting, the three-way valve is positioned to permit recirculation of the water. It does not go through the tower. This condition will prevail during cold weather, of course.

Thermostat Changes 3-Way Valve

When the sump tank thermostat calls for cooling of the condenser water, the thermostat changes the three-way valve to send the water through the tower. If further cooling of the water is required, the thermostat will then start the tower fan.

To protect the system against possible failure of the water circulating pump, a connection to city water has been provided. This is so wired that if the circulating pump fails, a two-position valve opens to allow city water to enter, and at the same time the three-way valve is positioned to by-pass the tower as it does during cold weather.

Furnishes Warning Signal Panel

A warning signal panel was also furnished for this job by Barber-Colman. Complete with an alarm bell and nine red pilot lights, the panel is mounted on the wall just outside of, and directly visible from, the warehouse manager's office.

One of the nine red pilot lights is connected to the thermostat in the condenser water sump tank, and each of the other eight lights to a thermostat in each of the eight coolers.

Alarm Rings When Temperature Rises

When the temperature in any cooler, or the condenser water temperature, rises above the pre-set safe point, the thermostat turns on the corresponding pilot light and rings the alarm bell.

A toggle switch on the panel permits the warning bell to be turned off manually, but the warning lights are controlled solely by their thermostats. As a result, a red light warning of high temperature will not go out until the temperature has been brought down to the proper point.

Firm Blast Freezes, Packages, Freezes Meat Again To Lock Color In Place

SAN DIEGO, Calif.—Development of a "double-freezing" process whereby 30 items of fresh meats are momentarily blast frozen, then packaged and frozen again, has solved many problems in successful promotion of pre-packaged frozen meats for Central Meat Co. here.

Edward Kuhlken, president of the firm, a fresh meat packer in Southern California for almost 50 years, is convinced that "the future of retail meat sales lies in pre-packaged frozen cuts," and consequently all operations during 1957 have been slanted toward this.

Currently, Central is producing ground round steak, ground beef, ground beef patties, stew beef, sliced thin beef liver, pork spare ribs, veal cutlets, seven types of steaks, five types of chops, and three varieties of roasts, all sharp frozen, all completely pre-packaged, priced at the production plant, and built into displays in retail stores by the packing plant's salesmen.

System Is Easy for Retailer

This system, easy for the retailer, amounts to "offering the food store operator an extra hour or two per day for other operations," according to Kuhlken. As the first test program on the sale of the frozen products proved, grocers "snapped up the offer gladly," he added.

Under the program, prime, top-grade beef products are inspected, processed, cut, and immediately passed into a Federal blast freezer which operates at a temperature of -40° and which can accommodate upwards of 1,000 lbs. of meat items simultaneously. Here, frozen for a few minutes, the meat cuts develop a rock-hard surface from $\frac{1}{16}$ to $\frac{1}{8}$ in. deep.

After being refrigerated for this period of time, the cuts emerge from the blast freezer with the center layer, usually equivalent to from 80 to 90% of the depth of the cut, entirely unfrozen, it was stated.

The meat products then are run through an automatic packaging machine, which uses a special variety of plastic containers in bags, pouches, envelopes, tray, and rack set ups, according to the size and type of the meat cut.

Moves Through 'Shrink Tunnel'

As the package material is applied and heat-sealed, it moves immediately through a hot water "shrink tunnel" which contracts the clear plastic down to drum tightness over the cut, effectively sealing out air dust, etc., Kuhlken said. Then after emerging from the hot water bath the package is frozen for

the second time, this time in a 400-sq. ft. holding freezer, operating at a temperature of -20°, for complete freezing throughout, it was explained.

The reason for the double process is that refrigerating the exterior surface of each cut of meat in the glass freezer, "locks the color in place" while the meat is at full bloom and guards against discoloration, an overall gray appearance, said to be likely to ensue before packaging.

During the initial marketing campaign through Los Angeles and suburbs, the company found a gratifying response complicated, however, by a lack of sufficient low temperature display space in the stores involved. Consequently, the delivery schedule, where supermarkets and independent food stores have had only a minimum amount of refrigerated storage and display space available, has amounted to a heavy load.

An innovation in packaging has been development of a carton for larger cuts of meat, which has the usual glassine window. However, it is covered by a cardboard flat matching the rest of the carton and hinged at the top. The flap protects the meat from light damage, but the customer can simply lift it for a look at the contents, it was pointed out.

Additional facilities for refrigerating meat products will be installed as the load increases, according to Kuhlken.

Refrigerated Warehouse Stores Borden Cheese

ATLANTA—The Borden Co.'s new cheese division warehouse, sales office, and biscuit plant in the Empire Industrial District here provides 65,000 sq. ft. of floor space.

Ralph Peterson, manager of the Atlanta branch, in charge of sales and warehousing, says the new building has 8,330 sq. ft. of refrigerated storage space to supply Borden's cheese for distribution throughout the southeast.

Kerrigan To Head ASRE Dairy, Poultry, Allied Products Committee

NEW YORK CITY—E. N. Kerrigan of Indianapolis has been named chairman of the American Society of Refrigerating Engineers' Technical Committee 5.2—Dairy, Poultry, and Allied Products, it was announced.

Kerrigan, sales engineer for York Corp., subsidiary of Borg-Warner, in the central Indiana area, is a mechanical engineering graduate of the University of Illinois.

"A CASE OF COOL JUDGMENT"

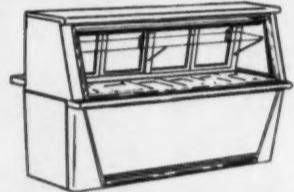
FLO-COLD DRINKMASTER STAINLESS STEEL CUBER—COOLER.
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AVAILABLE IN SIZES 4 TO 10 FT.

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EVERY SIZE FOR EVERY NEED FOR EVERY FOOD RETAILER

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Furnas Electric starters are rated for the job, and are designed to provide the exact size starter for your requirement. Only Furnas offers you ten instead of the usual five magnetic starter sizes, allowing you to choose exactly the right control. There is no need to pay more for a starter that may actually be too large. By matching the starter with the requirement, you can save up to 25% in cost and up to 40% in space.

For more information write for Bulletin 5519,
Furnas Electric Company, 1111 McKee St., Batavia, Ill.

A37

FURNAS ELECTRIC COMPANY
BATAVIA, ILLINOIS
SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES



For more information about products advertised on this page use Information Center, page 20.

Compact Condensing Units Permit Manila Firm To Make Beverage Coolers Nearing Completion



INSTALLING 1/4-hp. Brunner semi-hermetic condensing units in Coca-Cola coolers at Luzon Tinsmith & Co., Manila, P.I.

MANILA, P. I.—Faced with a restricted dollar allocation, the San Miguel Brewery here surveyed the possibility of obtaining locally manufactured refrigerator cabinets for cooling Coca-Cola.

If such equipment could be purchased, a greater share of its dollar allocation could be directed to the importation of basic ingredients for mixing beverages.

CHALLENGING PROSPECT SEEN BY FIRM

The project was presented to Luzon Tinsmith & Co. of Manila. Although supplying ice coolers since 1948, the prospect of turning out an electric cooler, complete with condensing unit, was a challenging one to Luzon Tinsmith.

The company had started as a small tinsmith shop just after World War II with a few pieces of second hand, manually-operated machines, producing handmade ice boxes, GI pails, kitchen sinks, and laundry tubs. By 1953 additional help and equipment enabled the company to move into the manufacture of ice coolers, kerosene stoves, filing cabinets, household and kitchen cabinets.

The purchase of a 300-ton hydraulic press further expanded facilities for answering the growing demand for local products.

TESTS RESULT IN ORDER FOR 500

Responding to the challenge posed by the brewery, Luzon Tinsmith & Co. turned out a pilot Coca-Cola cooling case, complete with 1/4-hp. semi-hermetic Brunner condensing unit supplied by the Williams Equipment Co. Ltd., Brunner distributor in Manila. After the sample case had been thoroughly tested, its performance resulted in an order for 500 com-

New Day & Night Plant Urges Buyers To Ask for Protective Bags To Protect Refrigerated Items

PUENTE, Calif. — The new Day & Night Mfg. Co. plant here has been reported as approaching completion on schedule.

The \$6 1/2 million structure is presently scheduled for occupancy some time late this summer or early in the fall, and with the recent tilt-up of the pre-cast concrete walls it is reported that this date will be met.

Over 500,000 sq. ft. will be utilized in the firm's manufacturing of water heating, heating, and air conditioning equipment and two miles of overhead chain conveyor will make it one of the most modern plants of its type, the company stated.

Nearly a quarter of a million dollars will be invested in the furnaces and other facilities alone for the production of the Day & Night "Jetglas" lining.

DENVER—When a customer arrives at the store from a distant point and purchases meats which are then exposed to warm weather for a considerable period of time, there is a "ripe" possibility for ill will, according to John Rohenkohal, meat department manager at the Busley Super Market in University Hills here.

"Most housewives forget, of course, that careful refrigeration in the store cannot offset the damage which can occur when the meats are hauled over distances of 20 miles or more on a hot summer day, inside an overheated automobile," Rohenkohal indicated.

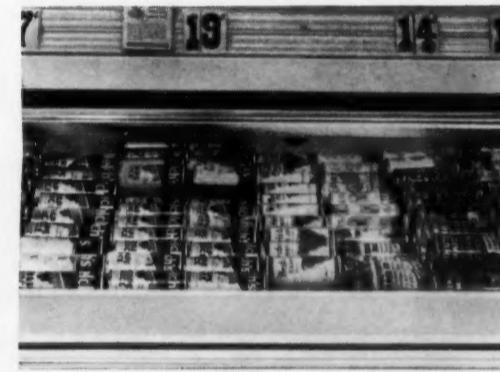
"Now that many of our customers have moved out into the suburbs and make less frequent 'extra service' involved has created valuable goodwill.

Signs placed along the self-service refrigerated cases are addressed to these customers and point out that anyone on duty at the meat counter as well as at the checkout stand will be happy to wrap these purchases inside the wax paper lined foil bags, where they will maintain a much lower temperature for at least three times as long.

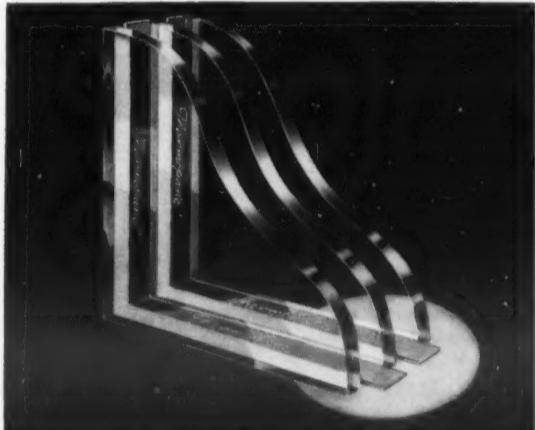
Keep your frozen food "in the clear" with THERMOPANE® INSULATING GLASS!

Customers see their favorite brands faster
(and from farther away)
through this glass

that stays clear!



ONLY THERMOPANE HAS A METAL-TO-GLASS SEAL



Only Thermopane insulating glass has the famous, patented Bondermetic Seal®. It's a metal-to-glass bond which prevents condensation between the panes of glass . . . keeps out moisture and dirt . . . and, there's NO ORGANIC SEALING MATERIAL TO DETERIORATE! Look for the name "Thermopane" on the seal between the panes.

LIBBEY·OWENS·FORD GIVES YOU A 5-YEAR WARRANTY

More than 7,000,000 units warranted to date. Accept no substitutes. For your own protection, insist on Thermopane.



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- LEADS IN QUALITY
- LEADS IN PERFORMANCE
- LOWEST IN PRICE

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1400 LLOYD ST. PH. 3-4454
MONTGOMERY, ALABAMA

Refrigeration Problems And Their Solution (As Written by Paul Reed)

The late Paul Reed, one of the refrigeration industry's most respected writers and teachers, wrote a column on "Refrigeration Problems and Their Solution" which was published regularly in AIR CONDITIONING & REFRIGERATION NEWS for more than 15 years.

Readers throughout the years have hailed this written material as some of the most practical and helpful that has ever been published. Fortunately, the author had an opportunity to revise some of this material in the months before his untimely death, and the NEWS is re-publishing some selected instalments with the thought that it will be useful and interesting to its present readership.

Hot Weather Hints (4)

The great majority of condensing units 1 hp. and under are air cooled—that is, have air-cooled condensers. In the early days, air-cooled condensers consisted of

coils of bare copper tubing. The heat was conducted from them partly by direct radiation and partly by "natural convection," that is, they were what is known as "static" air-cooled condensers. The air in contact with or near the tube becomes warmed and thereby expands and becomes less dense, that is, it becomes lighter.



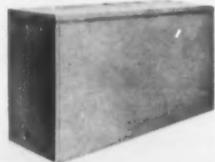
FOR HEAVY LOADS OF SHORT DURATION

Ice-Cel equipped:
First Baptist Church
Rockwood, Tennessee

Many of America's finest churches depend on DOLE Ice-Cels to provide the ultimate in air conditioned comfort for their congregation. The compact design of the Ice-Cel Units permits easy installation in the least amount of space. Initial investment is small and operating costs are low. Applicable for churches, offices, stores, theaters, auditoriums, cafeterias, mortuaries.

Charging of the Ice-Cel can be accomplished at any time. A small condensing unit can operate all day and most of night if desired.

Write for Engineering Catalog BAE.



DOLE REFRIGERATING COMPANY
5920 NORTH PULASKI ROAD, CHICAGO 30, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N.Y.
In Canada: Dole Refrigerating Products Limited
44 Elgin Street, Brantford, Ontario

Write for
"Ice-Cels in Action"
—a pictorial brochure—
or Engineering Catalog BAE.



Ice-Cel UNITS
THE BEST IN AIR CONDITIONING

It is therefore pushed upward by cooler air nearby, and thus a natural convection current of air is set up. How rapid the rate of circulation of air over the condenser will be is dependent upon how hot the tube is. The hotter the tube, the faster the rate of air circulation.

HEAT LOSS MUST MATCH HEAT GAIN

When the compressor starts, the air-cooled condenser is cool, for it has come down to about room temperature during the off cycle. The compressor starts to put hot gas into it and it heats up. As it heats up, it begins to radiate heat and the natural convection of air starts.

The hotter the condenser gets, the faster it radiates heat and the faster is the rate of air circulation due to natural convection. The faster the rate of air circulation, the faster does the condenser lose heat, until finally the condenser gets so hot that it loses heat by radiation and by air circulation just as fast as it is being heated by the hot gas from the compressor.

When it gets this hot, the heat loss from the condenser just equals the heat gain from the compressor, so they balance, and the condenser doesn't get any hotter.

If an air-cooled condenser is generous in size, it doesn't have to get so very hot; but if it is skimpy in size it has too little surface from which to lose heat, and it must get hotter in order to lose the amount of heat put into it.

CAPACITIES BASED ON 30° TO 35° RISE

Manufacturers of air-cooled condensing units put air-cooled condensers on them that are big enough that they must rise about 30° to 35° above room temperature before the heat loss equals the heat gain under maximum rated conditions.

Air-cooled condensing units of the same horsepower do not necessarily have air-cooled condensers of the same size and capacity. It must be remembered that there are three classes of condensing units, those whose displacements and motor loadings are based on 0°, 25°, and 45° F.

In B.t.u. per hour, a 1/2-hp. condensing unit does not have as great a capacity at 0° as it would have at 25°, the motor loading being the same. The air-cooled condenser will, therefore, not need to be as large. (It will not be just the same proportion however, for the condenser on the 0° unit will have more superheat to dispose of than the condenser on the 25° unit.)

The point is, that if we take a 1/2-hp. unit that was originally designed for use on a 0° or lower evaporator (for an ice cream cabinet or a frozen food cabinet) and put on a smaller pulley so that the displacement is reduced enough that the 1/2-hp. motor can handle it on a 25° evaporator, the chances are that the condenser will be too small.

To further reduce the size of the air-cooled condenser, the air is forced through it instead of depending upon the slow natural convection air current. The faster the air passes through the condenser (up to a certain "optimum" velocity) the greater will be the capacity of heat loss of an air-cooled condenser.

Again, it is a matter of saving space and of cost, for in the larger sizes (commercial) the difference in cost of the condenser only between a static condenser and one with forced convection, is enough to pay for the fan motor, fan, bracket, and shroud on the condenser, and still save money as well as space.

BLOWER AND SUCTION FANS

The distribution of air passing through a condenser is a very important factor. A "blower-propeller-type" fan tends to blow all its air through a doughnut shaped area of the condenser. The amount of air that it blows through the center and at each of the four corners is very small, depending of course upon the design of the

UNDER-CAPACITY CONDENSER OVER-HEATS

If it is too small, it will have to rise 40°, 45°, or 50° or possibly even more before it gets enough capacity for the heat loss to balance the heat gain. The same is true of using a condensing unit designed for use on a 25° evaporator (as in a store or market fixture with a self-defrosting setting), on a 40° evaporator, even though the compressor is slowed down so that the motor will not be overloaded.

So a high head pressure may be due to too small a condenser for the job to be done, that is, it doesn't have enough surface, so it has to make up the difference by getting hotter, so that its heat loss will be equal to its heat gain.

What is true of a static condenser is also true of a condenser that has a forced circulation of air through it from a fan. On some units, the fan is driven by a separate small motor. This is usually true with commercial sizes of hermetic units. On belt-driven units, the fan is usually mounted on the motor pulley and the condenser mounted just in front of the fan, so that air will be blown or sucked through it.

On household hermetic units, the condenser is usually the static type but a "flue" is provided in the rear of the cabinet to make the natural convection circulation of air more rapid, and hence increase the capacity of the condenser and/or allow the use of a smaller condenser.

Instead of a coil of bare tubing, modern units use "radiator"-type air-cooled condensers. The fins provide extra surface so the condenser can be very much smaller than a bare-tube condenser. Therefore, it can be furnished at much less cost and the unit can be more compact.

FORCED CONVECTION CONDENSERS

To further reduce the size of the air-cooled condenser, the air is forced through it instead of depending upon the slow natural convection air current. The faster the air passes through the condenser (up to a certain "optimum" velocity) the greater will be the capacity of heat loss of an air-cooled condenser.

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BLOWER AND SUCTION FANS

The distribution of air passing through a condenser is a very important factor. A "blower-propeller-type" fan tends to blow all its air through a doughnut shaped area of the condenser. The amount of air that it blows through the center and at each of the four corners is very small, depending of course upon the design of the

fan, shape of the blades, etc. This is evident from the dust accumulation on the condenser, which is dusty in the center and corners where the velocity is too low to blow the dust off.

To overcome this, manufacturers use suction fans that "suck" the air through the condenser. With them, the distribution of air over the entire face of the condenser is almost uniform, and as a result, with the same amount of air passing through the condenser, the head pressure is much lower with the suction fan than with the blower-type fan.

DIRECTION OF ROTATION MAY HAVE BEEN CHANGED

If the direction of rotation of the motor has been changed (by accident or intention) the direction of airflow through the condenser may have been changed from suction to blow. (This is apt to happen in the case of 3-phase motors on which the transposition of any two of the three wires to the motor causes a change in direction of rotation of the motor.)

Or in some manner, the fan itself has been changed from a suction to a blower type. (Just turning it over will make no change in direction of airflow, but due to the curvature of the blades, it will probably reduce the amount of air.)

Just placing a suction-type fan in front of an air-cooled condenser would not result in good efficiency. Instead of the air being sucked through the condenser, it would be sucked in from the sides between the ends of the fan blades and the condenser.

Thus it is necessary to shroud the condenser, that is, provide a sheet of metal or rigid fibre to form a tight duct from the condenser to the fan, so that all of the air passing through the fan will be drawn through the condenser.

Another advantage of the suction-type fan over the blower type is that it is possible to place the condensing unit more closely up against the wall if the suction fan is used rather than the blower fan.

With a suction fan, the distance from the face of the condenser to the wall does not need to be more than about a fourth or a third the width of the condenser. With a blower-type fan, the condenser should not be placed against the wall at all.

TURNING UNIT AROUND DOES LITTLE GOOD

Even turning the unit around with the condenser away from the wall does little good, so the unit must be placed with one of its ends to the wall. This makes an inconvenient position of the unit, for it takes up more room.

If the air blows against the wall, it will set up a "static pressure" that will reduce the amount of air that the fan can blow. Also, some of the air actually "bounces back" and is caught by the fan and recirculated through the condenser before it can cool, and this raises the head pressure.

(To Be Continued)

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Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

NOTICE TO SMALL FIRMS

Chief, Supply Branch, Maritime Administration, 45 Broadway, New York 6, N. Y.
FURNISH AND INSTALL 10-TON CARRIER AIR CONDITIONING UNIT
Model 50K12, or equal in Electronics Laboratory, Bowditch Hall, at U. S.
Merchant Marine Academy, Kings Point, N. Y.—Job—IFB B2-MA58-6—Bid
Opening 7-24-57.

ARMY

Purchasing and Contracting Officer, Redstone Arsenal, Huntsville, Ala.
ALTERATIONS AND AIR CONDITIONING to the Front Center Section Bldg.
No. 781—Job—IFB ORD-01-021-58-9—Bid Opening 5 Aug. 57—Drawings and
Specs. on file at Redstone Arsenal.

NAVY

Officer In Charge, Navy Purchasing Office, 180 New Montgomery St., San
Francisco, Calif.
The following items are procured under IFB 220-10535-P4-B—7 Aug. 57.
AIR CONDITIONING PLANT, capacity 117.5 tons, 2 ea.—capacity 82.5 tons,
1 ea.—capacity 12.5 tons, 2 ea.—Mil Spec. MIL-R-16743C (QPL) and various
drawings.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 3, Business Service Center, 250 Hudson
St., New York 13, N. Y.
NEW HEATING BOILER, New Stoker, etc. at USPO, Clyde, N. Y.—Job—IFB
2PC-7-1523(Advt)—Bid Opening 7-22-57.

General Services Administration, Region 5, 575 U. S. Courthouse, 219 S. Clark
St., Chicago, Ill.
The following items are procured under IFB CHD-1095—Bid Opening 7-24-57.
REFRIGERATORS, domestic, Type I, Fed. Spec. AA-R-211C and Amend. 1,
42 ea.—CABINETS, 5 ea.

Absenteeism--

(Concluded from Page 1, Col. 3)
during summer lunch hours to
enjoy the air conditioning.

Officials at headquarters of Merrill, Lynch, Pierce, Fenner & Beane brokerage house also found that women employees were less likely to venture out of cool offices at the noon break.

Some unexpected complications arose in companies having only partial air conditioning installations. In most cases, the air conditioned offices remained open, while employees in the non-air conditioned areas were sent home.

Many of the companies which lacked air conditioning reported they followed the "100-103" formula. If the temperature plus one-fifth of the humidity reaches a total of 100, or the thermometer hits 103, call it a day off. But a Texas Co. official, rejoicing in the third year of air conditioned comfort, recalled a simpler system for the hot old days: "We used to play it by perspiration."

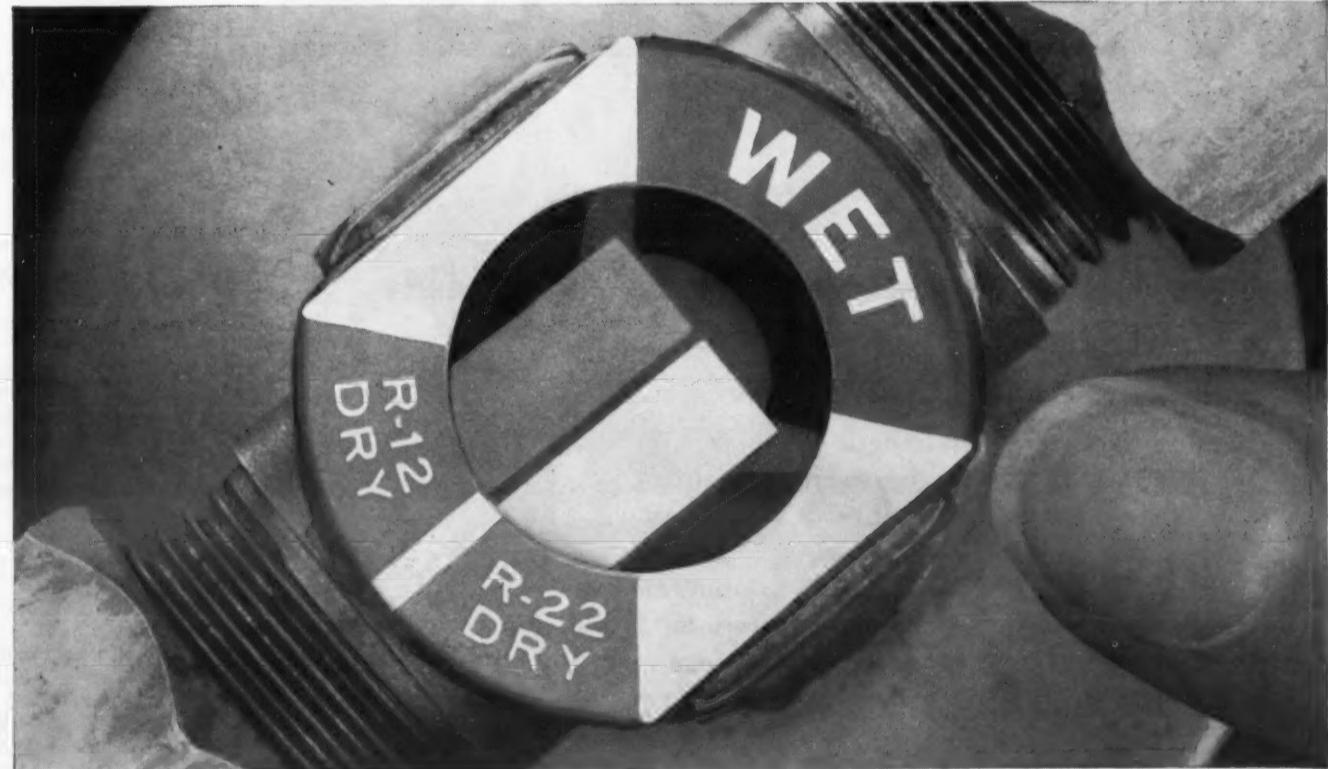
The survey indicates fewer and fewer employers and office managers will be "playing it by perspiration" when heat waves strike in the future.



Choice territories now available for sales representation. Inquiries invited.

IT'S HERE!

The world's first moisture indicator with a built-in sight glass. The new ANSUL SUPER DRY-EYE tells you at a glance if the refrigerant is dry or dangerously wet, and lets you see the condition of the refrigerant. Here are the four big servicing questions the super DRY-EYE answers for you scientifically!



Q. If I am using Freon-12 how will I know if it is dangerously wet or dry?

A. Just look through the big window at the R-12 indicating element. If it is blue the refrigerant is safe; less than 10 parts per million of moisture present. If it is pink, moisture has climbed above 30 ppm—time to change driers.

Q. If I use Freon-22 in a system how will I know if it is wet or dry?

A. If the R-22 element is green your refrigerant is in safe operating condition—less than 20 ppm of moisture. If the element shows pink, moisture has reached the 25 ppm level; time to change driers and avert a costly breakdown.

Q. Will the Super Dry-Eye tell me if there is a low refrigerant charge?

A. Yes. The fused glass window, the first proven leak-proof

cess will be Monday, Aug. 19.

Cryogenic applications will be the subject of Tuesday's morning session, Aug. 20. There will be a laboratory open house in the afternoon, and cryogenic equipment will be covered in both the evening session and Wednesday morning's session. Cryogenic Properties will also be covered Wednesday morning and again that afternoon to close out the confab. Open house will also be held the morning of Thursday, Aug. 22.

3 Announce Vacation Schedules In Advance

DETROIT — Three industry manufacturers have announced their vacation dates in advance to save vendors' salesmen useless calls and to enable customers to assure themselves adequate stock-on-hand.

B-I-F Industries, Inc. will be closed, both office and plant, Aug. 3 through 18, with provision made for emergency shipments only.

Heat Controller, Inc., closes its plant and office Aug. 26 through 30.

Shipments will be made for emergency purposes.

National-U. S. Radiator Corp. will close its Greenville, Ill. plant Aug. 16 through Sept. 3, but its offices will remain open and regular shipments will continue throughout the vacation period.

The Ansul Chemical Company, Marinette, Wisconsin





Capital Heat Wave Sells Room Units

A SOLID WALL of cool comfort to help soothe congressional brows is displayed on the loading dock of George's Radio & TV Appliance store in Washington, D.C. It is reported to be the largest mass display of room air conditioners in the country. All 500 units in the special hot weather rush shipment from Mitchell Mfg. Co. were on sale within 24 hours after the order was placed, according to Mike Filderman (c.), executive vice president of the firm. Millard Fleischer (l.), sales manager of the Jos. M. Zamoiski Co., Washington Mitchell distributor, and Joseph M. Zamoiski (r.), executive vice president and general manager of the distributorship, stand with Filderman in front of the Mitchell room units. So great was the demand for room air conditioners during the Washington heat wave that some units were sold right off the loading dock, Filderman said.

First 5 Months

Philadelphia Area Distributors Sell 25,365 Room Units

PHILADELPHIA—Air conditioner sales by distributors in this five-county area for May totaled 7,004 as compared with 10,219 for the same month last year, the Electrical Association of Philadelphia reported.

Total sales from Jan. 1 through May 31 amounted to 25,365 this year as against 28,939 last year in the same period.

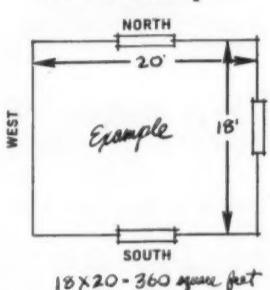
Refrigerator sales by distributors reached 4,028 in May, dropping below the 6,047 for the like period in 1956. Sales from the beginning of the year to the end of May totaled 14,660, a steep decline from the 27,991 in 1956.

Combination refrigerator-freezer sales were 2,676 for May and 10,755 for the first five months.

Home freezer sales were 556 in May, up from the 421 last year, but total distributor sales for the first five months were 2,118, down from '56's 2,503.

HOW MUCH COOLING?

HERE'S an ABC formula developed by air conditioning engineers at Gibson Refrigerator Co. to help figure the cooling capacity for any room under a variety of conditions as shown in the example.



A AREA OF ROOM 360

USE ONLY ONE

ROOM WITH ATTIC ABOVE

$x 13 =$ AREA SQUARE FEET

ROOM WITH OCCUPIED ROOM ABOVE

$360 \times 6 = 2160$ AREA SQUARE FEET

ROOM WITH FLAT ROOF ABOVE

$x 19 =$ AREA SQUARE FEET

B WALL MOST EXPOSED TO SUN

$18 \times 90 = 1620$ LENGTH IN FEET

This is the approximate BTU rating required for an air conditioner to cool the room properly if it is to be used by two people. Add 500 for each additional person. Data: Gibson Refrigerator Company

C OTHER WALLS

INCLUDE ALL WALLS NOT IN "B"

$20 \times 20 + 18 = 58$

$58 \times 30 = 1740$ TOTAL LENGTH IN FEET

D WINDOWS MOST EXPOSED TO SUN

USE ONLY ONE EAST OR SOUTH WITH SHADES

$3 \times 2.8 = 8.4$ ft.

$8 \times 45 = 360$ GLASS AREA SQUARE FEET

E OTHER WINDOWS

INCLUDE ALL WINDOWS NOT IN "D"

$16 \times 14 = 224$ GLASS AREA SQUARE FEET

A 2160

B 1620

C 1740

D 360

E 224

TOTAL 6104

MANY people get the biggest air conditioner they can find to make sure they stay cool no matter how hot it gets, Gibson engineers say. But this is almost as bad as getting a unit that is too small. An oversize unit cools a room too rapidly, resulting in an uneven temperature-humidity balance. This simple arithmetic formula helps get the right size air conditioner. It is applicable to all rooms except where there is an unusually heavy ventilation load—doors and windows open—or an unusually heavy electrical load, the engineers state. Cooling is measured in B.t.u., the amount of cooling required to lower the temperature of a pound of water 1° F. First figure the area of a room by multiplying its width by its length. Then multiply the area by 19 if there is a flat roof above the room; by 13 if there is an attic above; or by 6 if there is another occupied room above. Then follow right through the steps shown.

Now Representing...

Dean Products, Inc.—Four representatives have been added to the firm's organization. JOHN R. HUFF, Merion Sta., Pa. will cover Maryland, Delaware, Virginia, and the District of Columbia. CHARLES WACHHOLTZ of Dallas will handle the Arkansas, Louisiana, Texas, Oklahoma territory. C. G. "MUTT" BAKER, Atlanta, will cover North and South Carolina, Tennessee, Mississippi, Alabama, and Georgia. R. E. LERICHE of Seattle will handle Oregon, Idaho, and Montana.

Drayer-Hanson, Div. of National U. S. Radiator Corp.—S. C. McCANN CO., Kansas City, Mo., has been named sales representative in western Missouri and Kansas to replace M. A. DISNEY CO. of Kansas City.

Manitowoc Equipment Works—Following sales representatives have been appointed to handle built-in refrigerator-freezer combinations: GEORGE WALTER and JOHN J. FEENEY, Rochester, N.Y., in New York state; JOHN B. HESSER, Philadelphia, in Pennsylvania, Delaware, New Jersey, New York City, and Long Island; ANDY HYNES, JR., Washington, D.C., in the nation's capital, Maryland, and Virginia.

York Corp., Subsidiary of Borg-Warner Corp.—PHILLIPS REFRIGERATION PRODUCTS, INC., San Francisco, was named a franchised associate in the sale of York industrial products.

Frigikar Corp. (Dallas)—TULLER CORP., Columbus, Ohio, has been appointed distributor for "FrigiKing" auto air conditioners.

Ben-Hur Mfg. Co. (Milwaukee)—FRANK GERRY & CO., LTD.,

London, Ont., Can. has been named distributor for Ontario for Ben-Hur's entire line. DAVID WALLEACE, ALLIED ASSOCIATES, Baltimore, will handle built-in units in Maryland and Delaware. J. V. CLEMENT will represent built-ins in Georgia and Florida. ERICK LOEB will handle the entire line in upstate New York.

HENRY YOUNG, Malvern, Pa. will represent the firm in New York City, New Jersey, and eastern Pennsylvania. VERN KETCHAM, Cleveland, will cover the Pittsburgh, Cleveland, Youngstown, and Columbus, Ohio markets.

A. W. Cash Co. (Decatur, Ill.)—Appointment of three sales representatives for lines of pressure, temperature, hydraulic, process, and combustion control equipment have been announced. They are UNION STEAM POWER (PTY.) LTD., Johannesburg, S. A.; PANAMA ELECTRIC & MACHINERY CORP., Panama, R. P.; and ENGINEERED INSTRUMENT SALES CO., Memphis.

McQuay, Inc.—ALEXANDER MITCHELL CO., Albany, N.Y. has been named heating and air conditioning products representative in central and eastern New York state and Vermont. R. K. GOODE CO., New Orleans, will cover the New Orleans territory.

For Your Reprint Copy
"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich. Only 25¢ each.

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Company _____
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City _____ Zone _____ State _____

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For more information about products advertised on this page use Information Center, page 20.

Firms See Total Sales, Net In '57 Equal to or Above Last Year

DETROIT—General Electric Co. in the second quarter increased net income to \$63,817,000, equal to 74 cents a share, from \$57,902,000, or 67 cents in the like 1956 period, the company reported.

Sales from April 1 through June 30 climbed to \$1,072,460,000 from \$1,012,516,000, the company said.

First-half-year net income increased to \$127,823,000, or \$1.47 a share, a gain of 13% from the \$112,864,000, or \$1.30 a share in the same period last year. Sales in the first half year rose 8% to \$2,121,310,000 from \$1,958,974,000 in the first six months of last year.

Ralph B. Cordiner, president, stated that business during the first half of the year was not uniform for all the firm's products. Sales of capital goods equipment continued high.

Following are reports on sales and earnings of other firms:

Net income of Borg-Warner Corp. for the first six months was "approximately the same or slightly lower than" the first half of 1956, although sales rose about 4%, Robert S. Ingersoll, president, said.

B-W earned \$14,451,362 or \$1.81 a common share in the period ended June 30. Consolidated sales for the period included acquisitions made throughout 1956 totaled \$309,741,000, Ingersoll added.

"We expect results in the third quarter to be slightly better than in the like period of 1956 and the fourth quarter

New Wall Tube Firm Elects Officer Slate

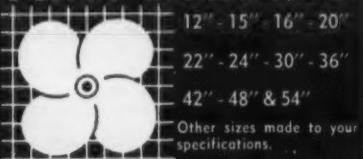
NEWPORT, Tenn.—Election of officers of the newly-formed Wall Tube & Metal Products Co. here has been announced by John Goble, chairman.

W. W. McMinn, Sr. has been named president; M. M. Wachowiak, executive vice president; W. W. McMinn, Jr., F. L. Dempsey, and F. G. Higbee, vice presidents; and S. B. Fortenbaugh, treasurer.

Wall Tube was formed recently by the merger of operations, facilities, and assets of Wall Wire Products Co., Helical Tube Corp., and Bullard Industries, Inc. The firm will expand facilities for production of seamless and welded stainless steel tubing and tube fabrication, Goble said.

Development engineering in bi-metal condensers and evaporators is under way and facilities will be broadened for fabrication of metal stamping assemblies.

FAN BLADES



WIRE GUARD, SHELVES, ETC.
C&H Air Conditioning Fan Company, Inc.
1591-1623 DeKalb Ave.
ATLANTA 7, GA.

PRECISION QUALITY SINCE 1935

N. Y. Sheet Metal Workers--

(Concluded from Page 1, Col. 4) systems other than fans, blowers, etc., without contacting Local Union No. 28."

The next two provisions requested that "All ventilators and louvers to be in the roofing and sheet metal sections of the contracts of the heating contractors" and that "employers not to figure work unless the above section is complied with by the builder, architects, and engineers."

Another proposed contract change called for "full discussion of the use of substitute materials, and if same is to be used, that a six-hour work day with seven-hours pay shall be invoked on all jobs wherein such substitutes are used in lieu of rigid sheet metal duct or fittings."

Because all of the demands other than those dealing with

Stalemate--

(Concluded from Page 1, Col. 4) council, said further meetings had not been scheduled.

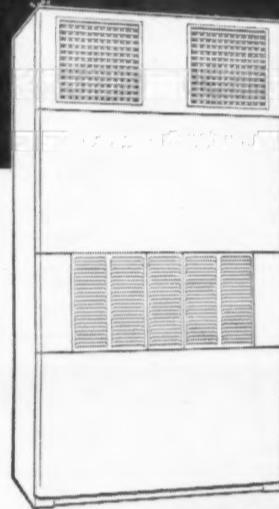
Ely said he had arranged to file application for a restraining order and injunction in Superior Court to deal with the situation of 23 individual employers signing "short forms" with the union.

Two responsible sources said there had been no defections of employers represented by the council, and no disposition to change position on the wage offer.

Next development in negotiations may hinge on Superior Court decisions on injunction applications, including the application already filed for the Plumbing, Heating and Piping Employers Council.

Refrigeration journeymen are working under an agreement negotiated earlier this year.

DETROIT NO. 714 AIR CONDITIONING EXPANSION VALVES



★ Broad Range of Application

2 to 10 tons—12—3 to 17 tons—22

★ Sweat Connection Sizes

Inlet $\frac{1}{2}$ " to $\frac{3}{4}$ " O.D.—Outlet $\frac{3}{8}$ " to $1\frac{1}{4}$ " O.D.

★ "G" Charge Level Action Feeler Bulb

Minimizes surge for very close superheat control and maximum valve operating efficiency.

★ Easy To Service

Custom charged power elements can be interchanged for different refrigerants and various capacities.

Entire valve easily disassembled for inspection and cleaning, without removing from the line.



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THE 790-L DISTRIBUTOR (2 to 8 passes) is used with the 714 Valve or any O.D. outlet connection expansion valve of comparable capacity. All outlet circuits are $\frac{1}{4}$ " O.D.



THE 790-M DISTRIBUTOR (9 to 12 passes) is a solder connection distributor for the 714 Valve or any other O.D. outlet connection valve of comparable capacity. All outlet circuits are $\frac{1}{4}$ " O.D.

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Division of AMERICAN-STANDARD

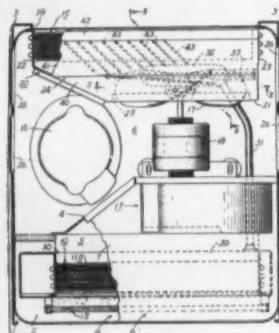


Canadian Representatives: RAILWAY AND ENGINEERING SPECIALTIES LTD., Montreal, Toronto, Winnipeg

For more information about products advertised on this page use Information Center, page 20.

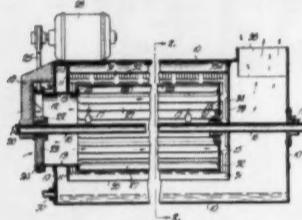
PATENTS Weeks of May 28 and June 4

2,793,510. CONDENSATE DISPOSAL. Paul Komroff, Union, and Carl L. Tucker, Clifton, N. J., assignors to Quiet-Heat Mfg. Corp., Newark, N. J.



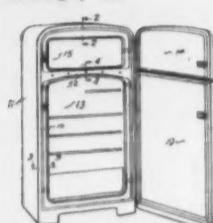
1. In an air conditioner of the type having a compartment through which air from an enclosure to be conditioned is circulated in heat exchange with an evaporator therein, a second compartment through which outside air is circulated in heat exchange with a condenser therein, and means for delivering condensate from the evaporator to the second compartment, the combination with such an air conditioner of a liquid lifter for raising condensate and discharging it above the condenser in a continuous stream, and a liquid distributor for receiving the stream of condensate from the lifter and having a plurality of rearwardly extending depending vanes of progressively increasing length projecting into the stream for dividing it proportionately and directing it to spaced points along the top of the condenser for gravity flow downwardly thereon.

2,793,710. HEAT EXCHANGER. Claude L. Robinson, Kansas City, Mo.



1. Apparatus for achieving efficient heat transference of fluids comprising an outer enclosing housing, a chamber enclosed within said housing, a shaft extending axially through said housing and chamber and piercing the end walls of said chamber, a walled air passage mounted circumferentially to said shaft and rotatable within said housing and piercing one end wall of the housing and chamber, a rotatable cylinder positioned axially entirely in said chamber and mounted circumferentially to said drive shaft and rotatable relative said housing, means for rotating the passage and cylinder relative the housing, the end of said cylinder adjacent the inner end of said passageway being sealed except opposite the open portion of the passageway, the other end of the cylinder being opposite the passageway and closed to block air flow therethrough. . . .

2,793,781. REFRIGERATOR LINER SEALING MEANS. Evans T. Morton, Knoxville, Ill., assignor to Admiral Corp., Chicago, Ill.

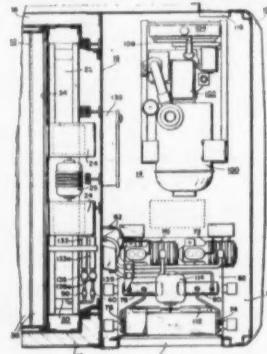


4. A refrigerator cabinet construction comprising a pair of spaced walls, at least one of said walls defining a channel open at one side, a flexible web of moisture resistant material extending from said channel across the space between said walls, said web terminating at one end in a bead seated in said channel in sealing relationship therewith, said web at its opposite end being sealed to the other of said walls, and a breaker strip extending over said web from said one wall to the other, said breaker strip being formed with a lip extending into said channel and engaging said bead on the web thereto to hold said bead seated in said channel.

2,793,834. VEHICLE REFRIGERATING APPARATUS. Charles F. Henney, Dayton, and Ira L. Gould, Hamilton, Ohio, assignors to General Motors Corp., Detroit, Mich.

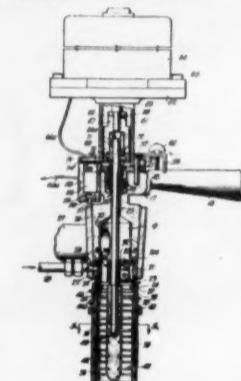
1. In a refrigerated railway car, an outer shell, an inner shell forming a commodity compartment to be refrigerated, insulating means between said inner and outer shells, one end of said inner shell being spaced from the adjacent end of said outer shell so as to form a machinery compartment, a first refrigerating system including a compressor, condenser and evapora-

tor connected in series refrigerant flow relationship, a second refrigerating system including a compressor, con-



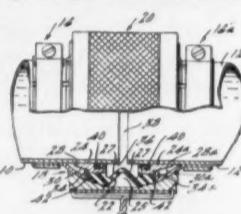
denser and evaporator connected in series flow relationship, means for circulating air in thermal exchange relationship with said evaporators and said commodity compartment. . . .

2,793,838. FLAVOR MIXING EXTRUSION HEAD. Virgil E. Painter, Newton, Iowa, assignor to Tony B. Lumpkin, Thomas Hocker, O. G. Hocker, and Virgil E. Painter, a partnership doing business as Dairy Queen Co., Mexico, Mo.



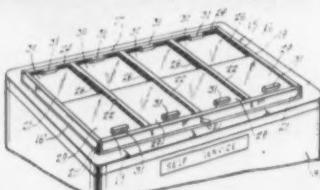
1. A flavor mixing extrusion head for frozen dairy products having a flow passageway for frozen dairy products extending through said head, a chamber for receiving frozen dairy products positioned at the upper end of said passageway, an inlet opening for supplying frozen dairy products into said frozen dairy product chamber, valve means for opening and closing said inlet opening, a chamber for receiving flavoring material in said extrusion head below the frozen dairy product receiving chamber. . . .

2,793,883. FLEXIBLE JOINT FOR RIGID TUBES. Benjamin A. Main, Jr., Elvins Junction, Mich., assignor to Aeroquip Corp., Jackson, Mich.



1. A flexible fluid sealed joint for rigid unthreaded tube ends having the ability to permit relative rocking movement between the jointed tubes as well as limited axial movement and misalignment of the tubes comprising a sleeve of elastomeric material presenting side walls engageable over end portions of two axially adjacent tubes to define an enclosed space open to the interior of the thus connected tubes, each said side wall including sealing means maintaining a fluid sealed connection about the corresponding tube and including also a sleeve portion extending axially away from said sleeve and encircling the corresponding tube.

2,793,925. TRANSPARENT SLIDE COVERS FOR FROZEN FOOD CABINET NETS. Leon Rosen, Brooklyn, N. Y.

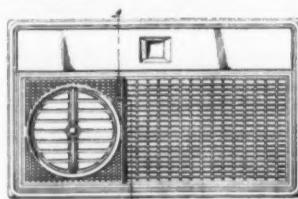


1. A removable, transparent sliding panel cabinet cover for ice cream, frozen food and like cabinets comprising a rigid rectangular frame adapted to rest on top of a cabinet, said frame including side and end rods and transverse rods extending between the side rods, a plurality of pairs of clear transparent panels slidably mounted on said rods across the rectangular frame, each pair of panels being positioned in the frame with panels in partially overlapping condition and adapted to slide in parallel spaced relation one across the other crosswise of the frame. . . .

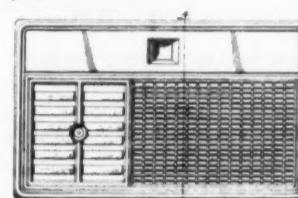
For more information about products advertised on this page use Information Center, page 20.

DESIGNS

180,376. AIR CONDITIONER FRONT PANEL. Charles W. Sanders, Greenville, Mich.



180,377. AIR CONDITIONER FRONT PANEL. Charles W. Sanders, Greenville, Mich.

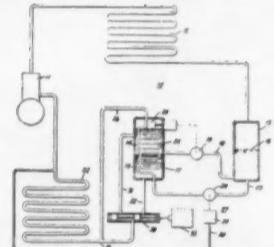


Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Copies should be ordered by number and title and a mention of the fact if they are either Designs or Reissues.

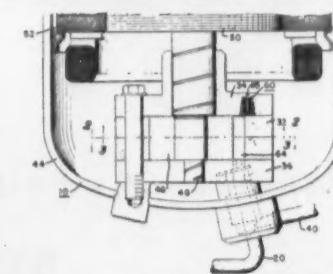
Address orders for any of the above to: Commissioner of Patents, Washington 25, D. C.

2,794,322. VARIABLE TEMPERATURE REFRIGERATION. Theodore L. Etherington, Ballston Lake, N. Y., assignor to General Electric Co.



1. In a refrigeration system utilizing two low temperature essentially immiscible refrigerants with different volatility and density characteristics, a compressor, a condenser, an operating liquid receiver and a storage liquid receiver, an evaporator, means connecting the outlet of the compressor and the inlet of the condenser, means connecting the outlet of the condenser and the inlet of the said operating liquid receiver, means connecting the outlets of the receivers and the inlet of the evaporator, cooling means connected to the operating liquid receiver to separate the refrigerants in the storage receiver, means to conduct said refrigerants from the separating means to the inlet of the evaporator, and means for selectively control the relative amounts of said refrigerants to circulate through said evaporator.

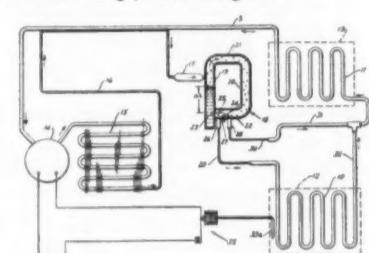
2,794,323. REFRIGERATING APPARATUS WITH OVERLOAD CONTROL. Francis L. Batacak and Harold C. Pearson, Dayton, Ohio, assignors to General Motors Corp., Detroit, Mich.



2. In combination, a housing, a motor-compressor assembly disposed within said housing, means introducing a fluid to be compressed into said compressor, said compressor having an outlet, means directing the fluid discharged through said outlet into said

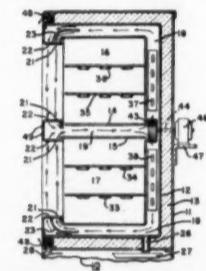
housing, said compressor including means forming a compression chamber having a passage in its one wall connecting the interior of said housing to said compression chamber, and a pressure responsive valve within said passage operable to admit fluid from said housing to said compression chamber in response to a predetermined increase of pressure within said housing.

2,794,324. PLURAL TEMPERATURE REFRIGERATORS. Elmer W. Zearfoss, Jr., Philadelphia, Pa., assignor to Philco Corp., Philadelphia.



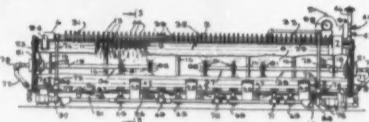
1. In a refrigerating system of the type including refrigerant circulating means, expansion means, heat exchange means, and means defining a pair of alternative flow paths interconnecting said expansion means and said heat exchange means, flow control apparatus effective to cause refrigerant to flow toward said heat exchange means through one of said paths under one condition of operation, and effective to cause refrigerant to flow toward said heat exchange means through the other of said paths under another condition of operation, said flow control means comprising: a receptacle to which is delivered refrigerant flowing from said expansion means and having means providing a pair of spaced outflow passages one of which leads to said one path and the other of which leads to said other path. . . .

2,794,325. REFRIGERATED DISPLAY CASE. Wendell B. Shearer, Miamisburg, Ohio, assignor to General Motors Corp., Detroit.



1. In a refrigerated display case, a cabinet having walls forming the top, bottom, sides and back of an open front food storage compartment therein, means for circulating air in a passageway around walls of said compartment, an evaporator of a refrigerating system within said passageway for cooling air circulated therein, one wall of said compartment front opening overlying another opposed spaced wall thereof and being provided with air outlet means therealong for discharging air from said passageway across the open front of said compartment, a splitter at said outlet means for stratifying air egressing therefrom into a plurality of side by side vertical streams of different velocity. . . .

2,794,326. METHOD AND APPARATUS FOR COOLING CANNED GOODS. Samuel A. Menegatti, San Jose, Calif., assignor to Food Machinery & Chemical Corp., San Jose, Calif.

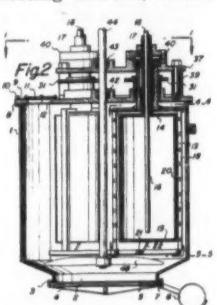


3. A cooler for heated articles, comprising a housing having an article inlet and an article outlet spaced apart horizontally, said housing having a plurality of cooling zones therein, means for advancing a procession of the articles through said zones from the inlet to the outlet, means for introducing coolant to the housing, means associated with each of said zones for collecting coolant after application of the same to said articles, means in each of said zones for applying coolant to articles, and a coolant recirculating means including a single conduit having valve controlled connections to each of said coolant collecting means for variably connecting said coolant applying means with selected ones of said coolant collecting means to regulate the rate of cooling of articles within the cooler.

2,794,327. APPARATUS FOR DEHYDRATION OF LIQUIDS BY FREEZING. Elwood P. Wenzelberger, Dayton, Ohio, assignor to The Commonwealth Engineering Co. of Ohio, Dayton, Ohio.

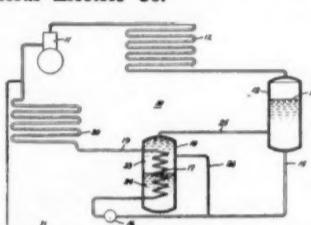
1. In a refrigeration apparatus, a tank, a plurality of spaced refrigerated tubes disposed within said tank, means for circulating refrigerant to and from the interior of the said tubes, a cover on said tank, said cover supporting said tubes and refrigerant supply

means, scraper means arranged in said tank for traveling over the outer side and bottom wall surfaces of said refrigerated tubes for preventing ice from collecting thereon, means on said



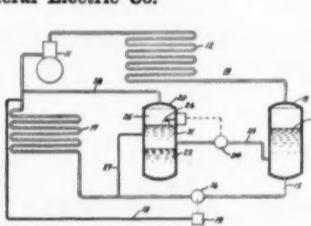
cover for supporting and driving said scraper means, said scraper means lightly engaging the outer wall surfaces of said refrigerating tubes and means for driving in unison said scraper means adjacent each of said tubes.

2,794,328. VARIABLE TEMPERATURE REFRIGERATION. Carlyle S. Herrick, Alplaus, N. Y., assignor to General Electric Co.



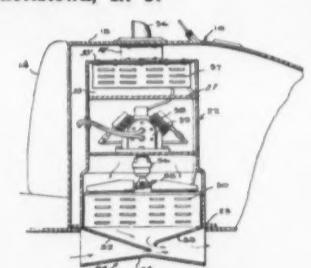
3. In a refrigeration system including a compressor, a condenser, and an evaporator, a pair of liquid receivers, a supply of partly miscible refrigerants in one of said receivers, means to circulate said supply, a second supply of partly miscible refrigerants in separate phases in said second receiver, means connected to said second supply and said circulating means to continuously supply at least one of said phases to said first refrigerants to vary the composition thereof, and means connecting the pair of receivers to circulate a part of said first refrigerant supply to said second receiver.

2,794,329. VARIABLE TEMPERATURE REFRIGERATION. Carlyle S. Herrick, Alplaus, N. Y., assignor to General Electric Co.



1. In a refrigeration system including a compressor, a condenser, and an evaporator, a pair of liquid receivers maintained at condenser pressure, a supply of partly miscible refrigerants in one of said receivers, a second supply of partly miscible refrigerants in separate phases in the other receiver, and means to supply at least one of said phases to said first mentioned refrigerants to vary the composition thereof.

2,794,330. AUTOMOTIVE AIR CONDITIONER. Thomas J. Dunn, Hackettstown, N. J.



1. The combination with an automobile having a body provided with a passenger compartment including a floor and sides, a rear seat in said compartment, a shelf in back of said seat, there being an inlet in each of the sides of said compartment below said shelf and rearwardly of said seat, said shelf being provided with an inlet, and a crankshaft having an end portion exteriorly and forwardly of said compartment, of an air conditioning unit comprising an upstanding housing including a bottom, side walls rising from said bottom, and a top extending over said side walls, an open ended tunnel extending transversely of and dependently carried by said bottom and having its top opening into said bottom, said tunnel extending below the floor of said body and having one open end facing forwardly of said compartment, and having the other end facing rearwardly of said compartment, means connecting each of the inlets in the sides of said compartment into communication with the interior of said housing. . . .

(To Be Continued)

Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

In response to numerous requests, the NEWS has resumed the popular series on automobile air conditioners. Latest models (1956 and/or 1957) of makes covered in the earlier articles, plus additional ones, will be included in this new series, which will describe units of leading "independent" producers as well as automobile manufacturers.

This series, which began in the June 24 issue, opened with a discussion of the A.R.A. auto air conditioner. The current instalment begins the discussion of Frigette units.

FRIGETTE (1)

Frigquip Corp.
3724 N. May Ave.
Oklahoma City, Okla.

This manufacturer was formerly known as Automotive Air Conditioning, Inc., and previously published service material appeared under that name.

Models produced and marketed in 1956 and 1957 included the "Frigette" under-dash unit (Fig. 1). Condenser mounts in front of the car radiator, and compressor is driven by the car engine through a magnetic clutch.

A by-pass valve is employed on the 1956 unit primarily to

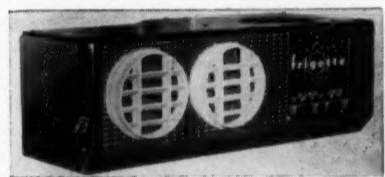


FIG. 1 is 1957 under-dash "Frigette" condenser cooling case. Note pushbutton controls.

prevent icing of the evaporator. The by-pass arrangement is eliminated on 1957 models, an adjustable thermostat which cycles the magnetic clutch being used instead.

Refrigerant-12 is used in both 1956 and 1957 models.

Compressor

The Lehigh V-93 compressor is employed on Frigette systems. This is a four-cylinder V-type compressor. Suction service valve is located on top of compressor between the cylinder heads; discharge service valve is on back on compressor opposite the flywheel end.

Warner SF-660 magnetic clutch is standard on 1956 and 1957 Frigette units.

Condenser

Condenser of Frigette units is located between the car radiator and grille. Inlet and outlet are on same side. Condenser may be installed with connections on left (driver's) side or right side.

On 1956 models, which employ the pressure-controlled by-pass valve, the by-pass valve is located at the condenser inlet attached to a special by-pass "t" fitting on the inlet (Fig. 2).

Connection at top of condenser is inlet regardless of whether it is installed for left or right-hand connections.

An accumulator-drier with a sight glass at the bottom is located in the front fender well on same side of car as condenser connections, being connected into the liquid line from the condenser (Fig. 3).

Evaporator

Cooling case assembly of 1956 and 1957 Frigette models is at-

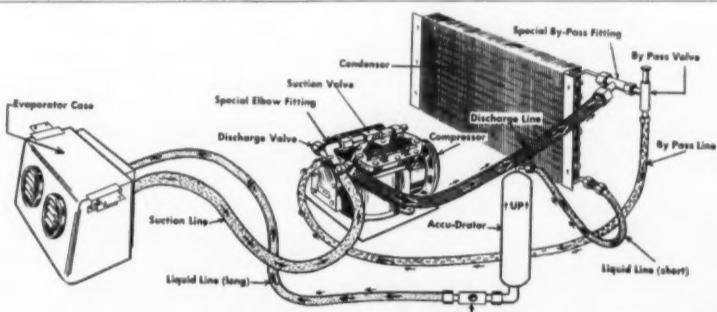


FIG. 2 shows major components of 1956 "Frigette" unit with condenser connections on right side. Note by-pass arrangement.

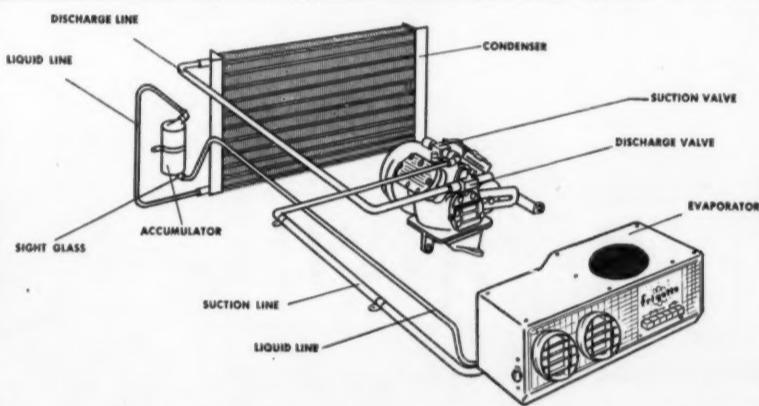


FIG. 3—"Frigette" condenser can also be mounted with connections on left side, as this 1957 model indicates.

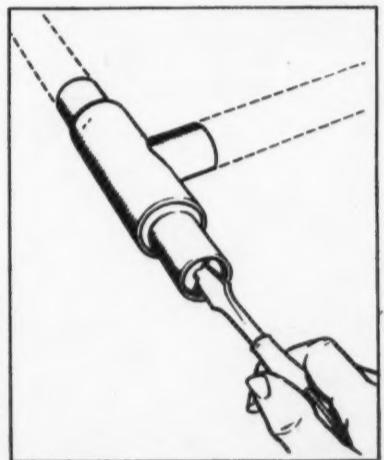


FIG. 4—Setting of by-pass valve on 1956 models is adjustable. Turning stem clockwise raises valve setting.

tached beneath the dash. It houses the evaporator, thermostatic expansion valve, fan, air outlets, and controls.

Thermostatic expansion valve employed on Frigette units is non-adjustable.

A propeller-type fan is used on the 1956 model, but the 1957 Frigette has a squirrel-cage blower.

Air outlets consists of two round adjustable grilles on both 1956 and 1957 models.

Controls

Two toggle switches comprise the manual controls on the 1956 Frigette unit. These are mounted on the cooling case.

One toggle switch is an SPST switch providing "on" and "off" positions for the magnetic clutch. When this switch is in the "on" position, the magnetic clutch is energized and the com-

pressor operates.

(To Be Continued)

More Information On Automobile Air Conditioning

READERS of this regular feature on "Servicing Automobile Air Conditioners" by C. Dale Mericle will find other articles of interest to them in the special Auto Air Conditioning section starting on page 6 and continuing through page 9.

A round-up story on auto air conditioner sales for the first half of 1957 will be found on page one.

Compromise Plan To End N.O. Nelson Bankruptcy Approved by Federal Court

ST. LOUIS—A compromise plan for ending the bankruptcy of N.O. Nelson Co. here was approved recently by United States District Court Judge Roy W. Harper.

"Unless we run into snags in the matter, which we do not anticipate, creditors will be paid by checks in the mail not later than Aug. 1," the judge said. He added that most claims would be paid in full under the plan that must now be submitted to stockholders.

Glenn L. Seydel and his associates, who own about 97% of the outstanding stock, have agreed to pay \$55 a share for 3,309 shares. If the holders of these shares elect to retain them, they will receive a divi-

dend of \$33 for each share. The compromise plan includes a loan from Walter E. Heller & Co. of Chicago and dismissal of a suit brought by bankruptcy trustee Elliot H. Stein.

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SALES, PROMOTION and application engineer. 21 years' experience at dealer, contractor, wholesaler, manufacturer and teaching levels of refrigeration, air conditioning and heating. Excellent success in public speaking for products promotion and instruction work. Fully qualified, dependable and references. Present location West Coast. BOX A5837, Air Conditioning & Refrigeration News.

BRITISH AIR conditioning and refrigeration engineer, ten years' experience in southeast Asia, designing, selling and supervising installation of all types high-quality refrigeration and air conditioning plants. Thoroughly conversant all makes American and European equipment and components. Member A.S.R.E., graduate mechanical engineer, desires relocate and work in field with manufacturer, distributor or main end-user in South America or Middle East, preferably with long-term prospects. Presently managing import company in Asia handling top U. S. air conditioning lines, free for engagement early 1958. Reply BOX A5840, Air Conditioning & Refrigeration News.

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DESIGN AND development engineer with education and experience suitable for work on refrigeration and air conditioning controls. Expanding markets demand an expansion of our engineering work. Join us, and help meet these challenges. Benefits for patents, educational subsidies, and other employee benefits. Modern air conditioned engineering facilities. Located in the Middle West. Reply in confidence giving details of education, experience and salary requirements. CONTROLS COMPANY OF AMERICA (formerly A-P Controls) 2450 No. 32nd Street, Milwaukee 45, Wisconsin.

MUST BE experienced in design, development and application of heat transfer equipment in the air conditioning and refrigeration fields. If you are young in ideas, eager to carve a career in closely-knit division of dynamic, expanding organization, this position offers the opportunity you've been seeking. All employee benefits, pleasant suburban area. Send complete resume to Alan S. Decker, Vice President, Engineering, DUNHAM-BUSH, INC., South Street, West Hartford, Conn.

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR, 2838 Lincoln Avenue, Chicago 18, Illinois.

tected territories available plus active sales promotion program. Send complete information about yourself to Sales Manager, EASTON R. S. CORPORATION, 876 Pacific Street, Brooklyn 38, New York. Write today.

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FAST GROWING manufacturer of environmental equipment requires manufacturer's representatives. Line includes low temperature cabinets, humidity chambers, and special chambers for environmental work. East, South, Middle West and West Coast territories available. Write giving full details about your organization. BOX A5834, Air Conditioning & Refrigeration News.

SALES ENGINEER for Chicago territory. One of nation's oldest and best-known manufacturers of commercial and industrial air conditioning and refrigeration equipment has opening for direct factory representative to sell wholesalers and manufacturers. Salary, expenses, excellent opportunity. Write in confidence. Give complete resume of self, including education, experience, family status, and age. Enclose photo if convenient. State salary requirement. Interviews in Chicago will be arranged. Write BOX A5838, Air Conditioning & Refrigeration News.

BUSINESS OPPORTUNITIES

FOR SALE: Established refrigeration and air conditioning service business, 5 years in location, only shop in city of 15,000, enough business for two men 10 hours per day. Altitude 6400 feet, average temperature 65 degrees. Too old to carry tool box. TED WATERS, Las Vegas, New Mexico.

AIR CONDITIONING, heating and refrigerating contracting business located in Michigan metropolitan area. Well established, good reputation, excellent credit rating. Last year's sales approximately \$500,000. Can be purchased for little more than current assets. Unusual opportunity for experienced and progressive party. Will consider terms and gradual acquisition. BOX A5833, Air Conditioning & Refrigeration News.

AIR CONDITIONING sales and service building; stock, fully equipped shop. Located in metropolitan New Jersey. \$25,000. Priced for quick sale. Write BOX A5835, Air Conditioning & Refrigeration News.

FOR SALE—Well-established, profitable business, air conditioning, refrigeration, heating and appliance sales and service. Dealers of General Electric air conditioning, heating equipment and other well known franchises. Doing large volume, potential sales unlimited. Land, new building, equipment and stock included. Located near metropolitan New York. \$90,000. BOX A5839, Air Conditioning & Refrigeration News.

MISCELLANEOUS

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR, 2838 Lincoln Avenue, Chicago 18, Illinois.

Cooling Off . . .**Firemen, Fishermen and Faye**

The familiar summer scene of a group of shirtsleeved firemen sitting outside their station may become one more nostalgic memory. The smoke-eaters will be doing their relaxing on the inside if, like the crew of the Central Fire Station, Altus, Okla., they have their headquarters air conditioned.

The station has been outfitted with a complete Airtemp central cooling and heating system. Sturdevant Sheet Metal Co. of Altus installed the equipment.

Heated and air conditioned enclosed fishing docks make fishing a year-round sport on Grand Lake, formed by the Grand River dam in northeastern Oklahoma. More than 50 of these air conditioned docks are now in operation.

Television-movie actress Faye Emerson cold-shouldered her Syracuse fans, all because of a hot air conditioning issue, the *Syracuse (N.Y.) Post-Standard* reported.

The newspaper said the actress cancelled a press conference, a luncheon appearance, and a television interview because of what the paper termed

St. Louis Sales--

(Concluded from Page 1, Col. 3) all of the preceding year.

Refrigerator shipments of 3,398 jumped 38.2% in May over April's 2,459, but slipped 4.9% from the 3,570 of May last year. These were broken down into 461 built-ins and 2,937 conventional refrigerators shipped in May; 204 built-ins and 2,255 conventionals in April; nine and 3,561 in May, 1956.

Total sales for the first five months fell off 17.5% with 13,381 moved as against 16,217 for the same period a year ago. These were broken down into 1,022 built-ins and 12,359 conventional types in 1957 and nine and 16,208 last year.

With 3,003 air conditioners being sold in May compared with 2,145 in April, there was a substantial 40% leap. However, shipments dropped 23.5% from the 3,927 of May last year. Total shipments of 11,595 in the first five months lagged 19.8% from the 14,450 of the like period a year ago, the utility said.

Shipments of air conditioners $\frac{3}{4}$ -ton and under this May totalled 1,188 and those of 1-ton and over 1,815. In April the like figures were 852 and 1,293 and in May, 1956, 1,896 and 2,031. Totals for the first five months of each year were 5,036 and 6,559 as compared with 6,643 and 7,807, it was further pointed out.



Mounts Minerallac hangers No. 0 to No. 6 on I-Beams without necessity of drilling holes. Have 14-20 tapped holes. Fits beam flanges up to $\frac{1}{2}$ " thick. Low cost. Send for literature.

MINERALLAC ELECTRIC COMPANY
25 N. PEORIA ST. • CHICAGO 7, ILL.

purchase of air conditioners for the board room and the adjoining zoning director's office.

The commissioners then wiped their brows and went on to discuss other business matters.

Two coolly clad models passing out entry blanks for a store contest helped Ken Blum sell 100 room air conditioners in a week in Baltimore. It didn't hurt to have a heat wave that week, too, Blum said.

An air conditioned mobile box office is the latest gimmick dreamed up by Michael Todd to make sure most people have an opportunity to purchase tickets to his "Around the World in 80 Days."

In addition to air conditioning, the unit is equipped with ticket racks, portable safe, and a recording of Todd's pitch for his picture. The box office will tour New York, Long Island, and New Jersey.

Memphis Outlets OK Cooling Code--

(Concluded from Page 1, Col. 5)

certified ratings from manufacturers and Morse advises buyers to ask to see these ratings. "The bureau has been furnished cooling capacity statistics on all units sold by cooperating dealers and distributors and will be glad to furnish anyone such information on request."

OTHER POINTS

Other important points covered by the 17 BBB standards:

Units other than new or current models must be advertised as such; no area square foot cooling claims shall be made for any unit (because of variations in residential construction, insulation, exposure, and the like, which affect cooling capacity); advertising must make clear any extra charges for featured equipment, installation, or service; there shall be no "bait"

offers ("nailed to the floor" models used only as a "step up" or switch to higher priced models); and non-deceptive disclosure of advertisements featuring credit terms is required.

Dealers and distributors who have agreed to abide by the BBB code represent about 90% of the total in Memphis.

DALLAS OK'S CODE

Earlier this year Dallas adopted a similar code setup through joint efforts of the BBB there, distributors, others.

In Cincinnati, a strongly worded letter of "advice" was sent out by the BBB to all advertisers of room air conditioners and various ad media. The letter cited a 16-point program adopted by the National BBB in cooperation with ARI. The Cincinnati letter recommended adherence to the standards.

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This mark . . . **DUNHAM-BUSH** . . . signifies proven dependability in this **one source — one responsibility** complete line of air conditioning, refrigeration and heating products.

When you see it . . . when you sell it . . . when you stock it . . . you know it's a dependable product!

Solidly reflecting Dunham-Bush product dependability is an ever available Dunham-Bush sales engineer. You can depend on him to help you solve problems . . . prevent problems. And remember, he represents not one, but three great industries . . . air conditioning, refrigeration and heating.

May we send him your way for a courtesy call?

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